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MOTOR AGE

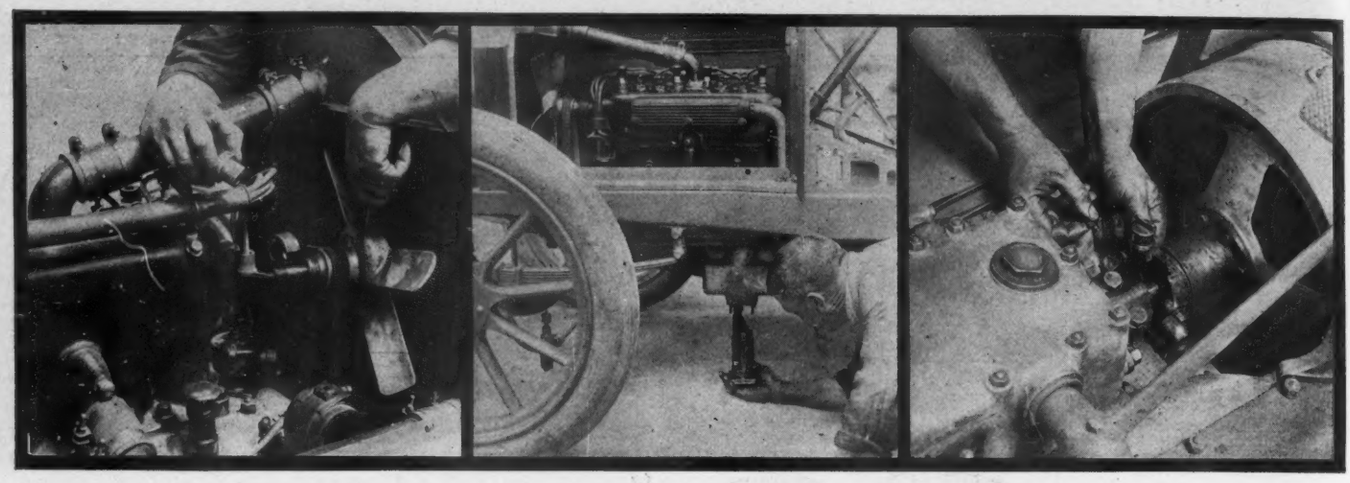
COMING PARIS SALON RICH IN MOTOR IDEAS

PARIS, Oct. 7—After an interval of 2 years the Paris salon will open in the Grand Palais on Saturday, December 3, to close on the 18th of the same month. It will be an entirely different show from the one held in 1908, for on that occasion the Automobile Club of France was supreme; now it is a manufacturers' association which controls, with the national club admitted in a honorary capacity only. The most apparent change under the new management is the uniform decoration of stands, and a drawing of lots for positions irrespective of the age of the firm or the number of speed records it has broken. It is a democratic reign that has been inaugurated, and although there are disgruntled persons who maintain that we have changed from the despotism of the club to that of three big firms, the vast majority is quite willing to be relieved of the work of designing an artistic stand and producing a decorative scheme that tended to become more costly every year. The show will not be as lavish as on previous occasions, but the hall itself is too artistic for the ensemble to be anything but pleasing.

General Tendencies Defined

Although all details are not yet available regarding 1911 models, for the French manufacturer is rarely fixed on his next season's design before the end of the old year, the general tendencies can be clearly defined. The whole attention of the industry has been directed towards increased efficiency of the internal combustion motor. The year 1911 will be one of small motors; it is safe to say that three-quarters of the French output will be cars having motors of not more than 80 millimeters or 3.1 inches bore. Throughout the industry there appears to have been a common understanding that a motor of this size can be made to give all that is required of it in the way of power and speed. Reasons for the reduction of the size of motors are not far to seek. France having a horsepower taxation and a high duty on gasoline, is interested in securing the highest efficiency of the motor; England, her most important customer, having a system of taxation with cylinder bore as its basis, it is desirable to get the highest power possible with the smallest bore. The last 2 years, also, with their speed contests under the limited-bore rule, have shown manufacturers much in the way of increasing power without any augmentation of cylinder bore.

When four-cylinder motors of 3.1 inches bore are mentioned it must not be imagined that the full six-passenger touring car has gone out of use. Some of the most important firms maintain that with a



FRENCH ACCESSIBILITY—REMOVING FAN AND OIL PUMP AND CLUTCH ON F. L. CAR

motor of this size they can get 35 to 40 effective horsepower, and with such a result it is possible to carry limousine bodies or produce touring cars giving all the speed that can be desired.

Ratio of Stroke to Bore

These small motors have without exception a high ratio of stroke to bore. Two years ago there was one car at the Paris salon with a stroke one and a half times greater than the bore. This year there will be very few with a lower ratio, and the vast majority will be considerably higher. The highest ratio for a purely commercial model—racing motors are naturally ignored—will be 2.4, adopted by Sizaire-Naudin with a motor of 2.7 by 6.69 inches bore and stroke. Taxed in England at 12 horsepower and in France at about 14, it will give to the user about 32 horsepower—an advantage that cannot be overlooked. Hispan-Suiza will have a ratio of 2.1 to 1; the dimensions being 3.1 by 6.69 inches; Lion-Peugeot will have 2 to 1; Delahaye 1.8 to 1; Gregoire 2 to 1; Labor 2.1 to 1 and 1.7 to 1; Delaunay-Belleville 1.8 to 1; Sauter-Harle 1.8 to 1; Luc Court 2 to 1; Brasier 1.64 to 1, for all the small models; Panhard-Levassor 1.5 to 1; Renault 1.5 to 1. And so it runs.

As a general rule the large and more conservative firms confine themselves to a stroke one and a half times greater than the bore for motors of less than 4 inches bore. It is the smaller firms, or the firms confining themselves exclusively to the production of small motors, which have increased this ratio to 2 to 1, or even slightly higher. A very popular dimension is 80 by 120—3.1 by 4.7—adopted by the leading firms; the more youthful factories, however, have often increased this latter dimension to 6 inches, with a further increase for semi-racing models.

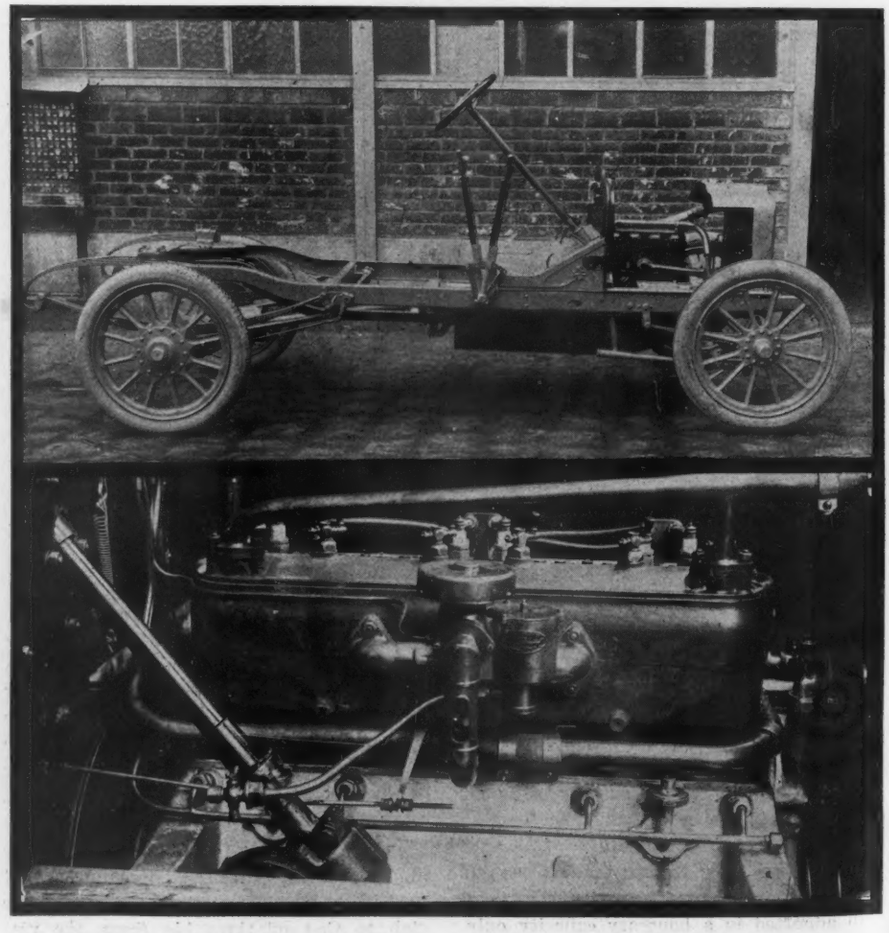
Small Motors Cast En Bloc

Almost invariably motors of not more than 4-inch bore are cast en bloc with buried intake and waterjacketed exhaust manifold. Discussion as to the advisability of employing single castings for comparatively large motors has long ceased, foundry men having shown themselves capable of meeting all demands. No better proof of the complete acceptance of the en bloc casting could be given than the adoption of this method by Panhard-Lavassor—the most conservative firm in France—for a six-cylinder motor of 3.1 by 4.7 inches bore and stroke.

Although the L type of motor is in the great majority the searchers after high efficiency are not convinced that this gives the most suitable valve arrangement. The big diameter valves necessary for high efficiency are so difficult to obtain with this arrangement that a number of firms, such as Luc Court, Chapuis-Darnier, Sizaire-Naudin and Gobron have superimposed them; while others, as Labor, Hispana-Suiza and Zedel, have simply returned to two camshafts, sometimes inclining the valve stems in order to reduce the area of the combustion chamber.

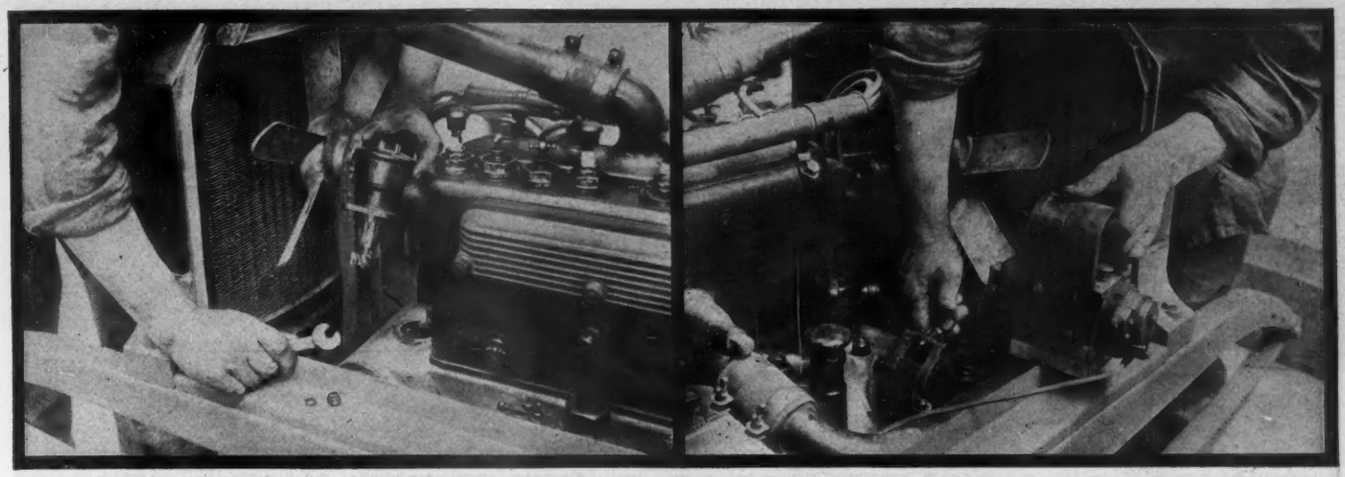
Two-Bearing Crankshafts Popular

Two-bearing crankshafts for motors of 4 inches bore or less are becoming more and more common. There is also a strong movement towards the adoption of ball bearings for the crankshaft—a movement that was started 4 years ago and arrested after the first unsuccessful attempts. This



CHASSIS OF 11-HORSEPOWER BRASIER

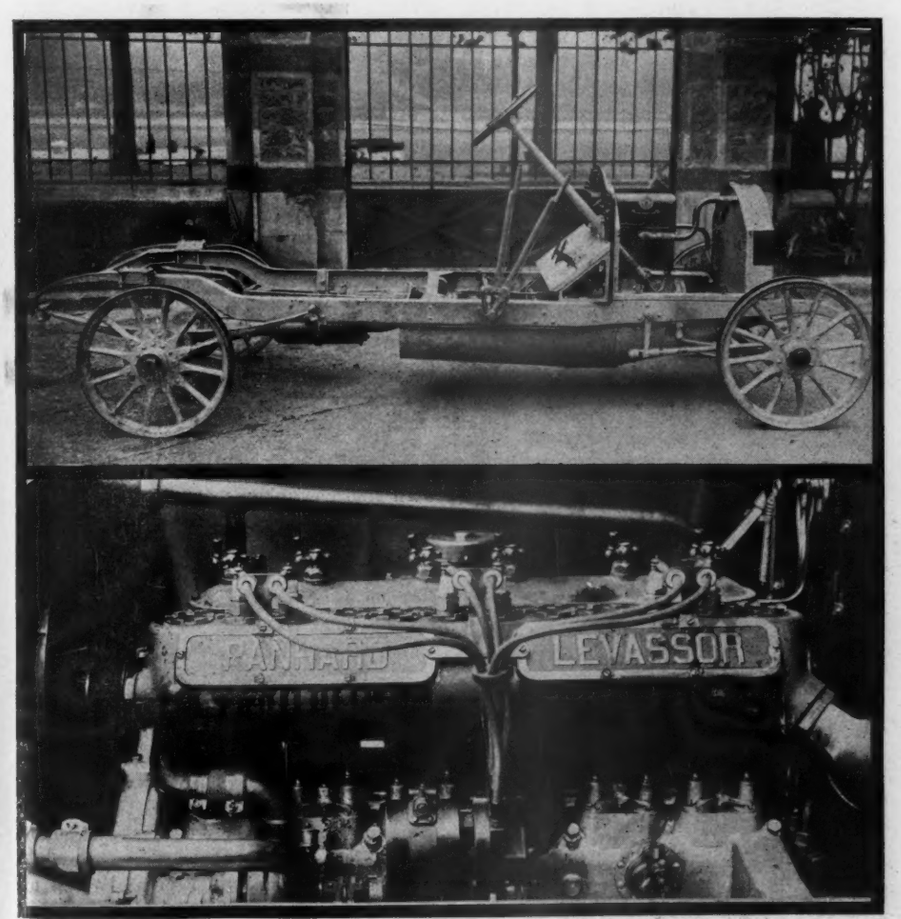
MOTOR OF 18-HORSEPOWER PANHARD SIX



FRENCH ACCESSIBILITY—REMOVING TIMER AND MAGNETO ON F. L. CAR

year at least a dozen of the makers of small long-stroke motors carry their crankshafts in ball bearings.

Except that the low-tension magneto has entirely disappeared, there has been no change in the matter of ignition. It is doubtful if there will be a single low-tension system at the Paris salon; even Brasier and Berliet, its stoutest upholders, have adopted high-tension magneto for all models, big and little. Duplicate ignition is a thing of the past. It may be fitted by some French firms as a concession to the English market, for the Englishman has an impression that the magneto is a box of mystery, but for home use there will not be an accumulator or dry cell to be seen. The cheapest single-cylinder runabouts have a high-tension magneto at a standard fitment and the most costly cars have no duplicate ignition as a standby. For the smaller models in particular the ignition point is fixed, reducing control to the operation of an accelerator pedal or a throttle on the steering wheel. Only on the larger cars is a variable sparking range provided. On the Renault models a feature of the ignition system will be the disappearance of the separate distributer, now combined with the magneto.



CHASSIS OF 12-HORSEPOWER GOBRON

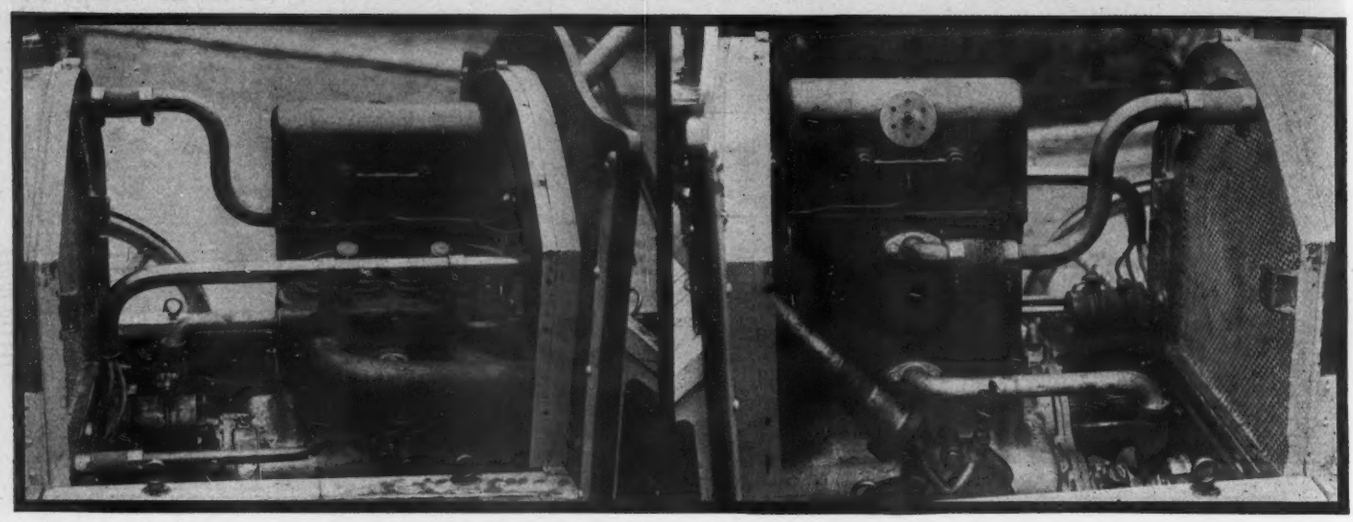
VALVE SIDE OF PANHARD SIX MOTOR

Strict regulation against smoky exhausts and a desire for economy have led to modifications in the lubrication system. Simple splash has almost entirely gone out of use. In the vast majority of cases an oil pump carried in the base of the crankchamber and worked off the camshaft delivers oil under pressure to the main bearings and through the hollow shaft to the connecting rod ends. The oil is passed through a filter before returning to the crankcase sump. This is the system now adopted by Renault on all models, the change resulting in the clearing of the dashboard of the tank formerly carried and of the sight feeds flush with the dash which were a feature of the 1910 models. A float indicates the level of oil in the sump, and the filler is conveniently placed at the forward portion of the motor. There are various modifications of this system, some makers providing splash by troughs under each connecting rod in addition to the forced feed, and a smaller number keeping to splash with a constant level in each trough maintained by pump. The desire of all makers, however, is to get away from oil tanks or sight feeds on the dash, and to make the lubrication self-contained and as far fool-proof as possible, which is indeed a most commendable thing.

Cooling is almost entirely by thermo-syphon on all four-cylinder models not exceeding 4 inches stroke, with a strong movement in favor of plain copper tubes, and a desire as far as possible to abolish the use of a fan. This latter has been abandoned by Gobron, Sautter-Harle, Brasier and others who formerly used it. The Sizaire-Naudin has its header tank cast with the body of the radiator.

Many Six-Cylinder Models

There will be a larger number of six-cylinder models than ever before. But, almost without exception, these will be cars of low and medium power, intended primarily for town service, where suppleness plays a most important role. The touring cars pure and simple will continue to have four cylinders only. Being intended for use with closed bodies, the space occupied



TWO VIEWS OF TWO-CYLINDER MOTOR USED ON 12-HORSEPOWER GOBRON

by the motor must be kept as small as possible. This has induced Panhard to cast its six cylinders in one block. Delahaye, with a new model of 65 by 120 millimeters bore and stroke, has adopted the V type of motor, with en bloc casting, thus having a bonnet which is even smaller than that housing a four-cylinder car of similar power. Delage is producing a new six-cylinder of 2.9 inches bore. Renault and Delahaye continue their small sixes.

Among minor improvements this year are steering columns with a variable inclination by means of a simple adjustment capable of being carried out by the owner; provision for filling the gear box with oil through a filler on the side frame; longer three-quarter elliptic springs, with the spring seating under instead of on the upper face of the axle, as adopted by Renault; easier adjustment of brakes; and the fitting of wire wheels if desired by customers. This latter innovation comes from England, where the demountable type of wire wheel has long been popular. No French maker has adopted it entirely, but many of them have been sufficiently converted to its value to offer it if desired. In 1911, for the first time, practically all firms will offer chassis without tires, this having been decided upon owing to the fluctuations in price during the past year and the impossibility of obtaining long-date contracts with the tire manufacturers.

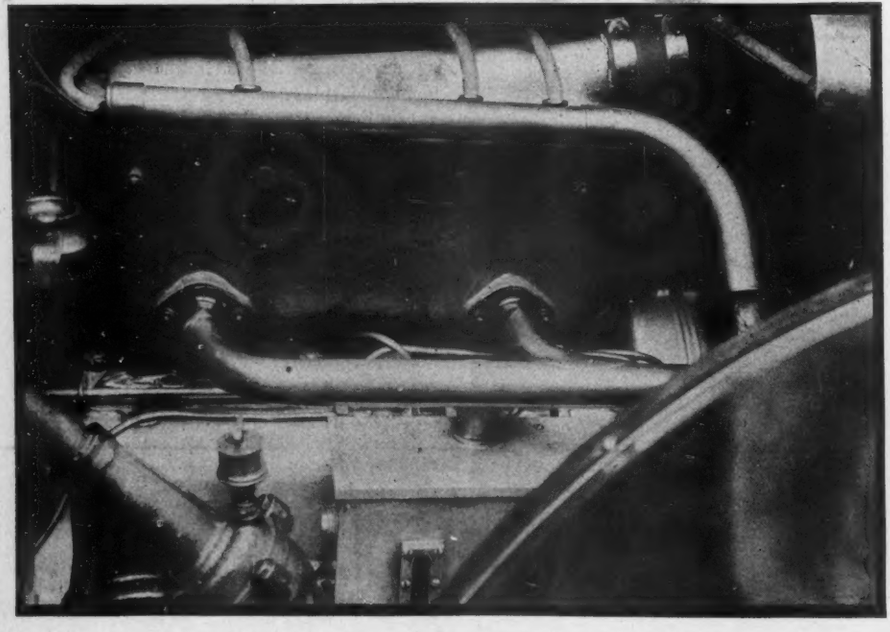
Panhard Featuring Knight Motor

After all the booming of the slide and rotary valve motor, it is doubtful if there will be any great adoption of this type among French makers during the season 1911. Panhard will make a special feature of its Knight motor, of one size only, but fitted to two different types of chassis. It is worth noting, however, that the greater portion of this output will be the poppet type of motor. Daimler, of England, will continue to sell the Knight motor in France; Minerva, of Belgium, will do the same; but it is very doubtful if there will be many additions to this list. One of the leading small-car firms has secured the patents for a single-cylinder slide-valve motor for which great claims are made, but its adoption has not yet been fully decided upon. One of the largest and oldest French firms also has bought up patents for a slide-valve motor which looks good on paper, but which has yet to be put to a practical test. There are others who are seriously looking into this matter, and it would not be surprising if a dozen unconventional types of motors were presented at the show. Whether they will be adopted, however, remains to be seen. The French manufacturers are moving very cautiously in this matter; four firms could be mentioned as having experimented all this year without coming to any definite conclusion.

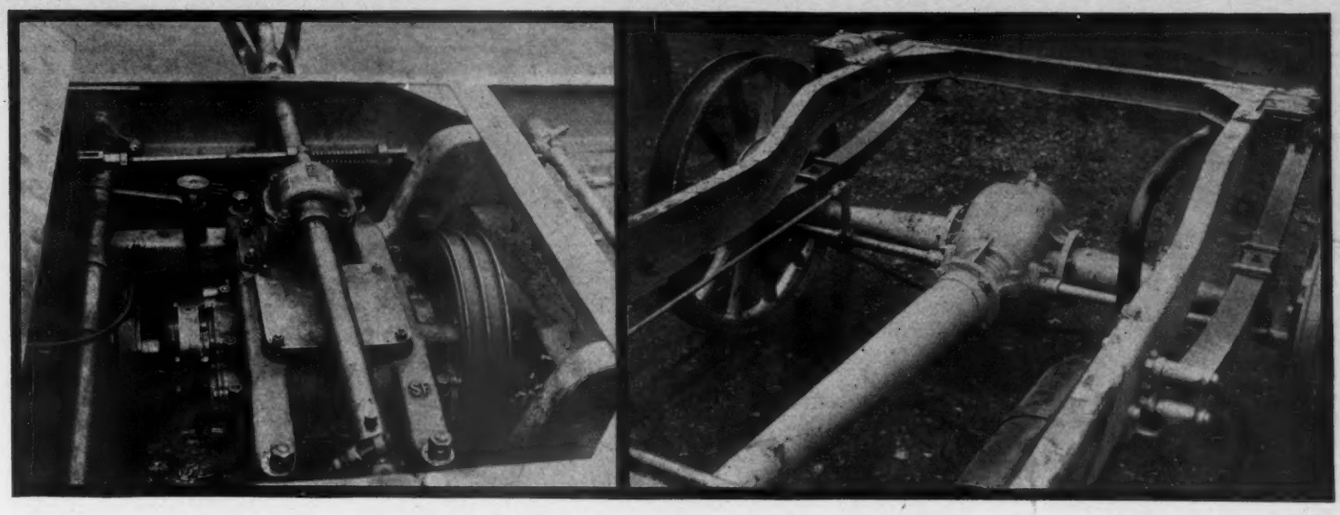
The new Panhard six-cylinder, the only entirely new model produced at this factory for the 1911 season, can hardly be described as an innovation. The firm has built two six-cylinder types for the past 2 years, the cylinders being cast separately, but united together by longitudinal bolts so as to form a common waterjacket. Both of these were large, expensive models. The newcomer is a development of a four-cylinder monobloc produced a year ago and having proved very popular. The cylinders were a single casting of 80 by 120 millimeters—3.1 by 4.7 inches—with thermo-syphon water circulation. On the new six the same cylinder dimensions have been adopted and the same general design adhered to. The outstanding difference is that water circulation is assured by pump instead of by natural flow.

Valve on One Side

The valves are all on one side, operated from below by a shaft with integral cams. Spark plugs are mounted over the intake valves and compression cocks are carried in the center of the cylinder heads. The timing gears are contained within an aluminum housing at the front of the motor, the pinions being only three in number, with magneto and water pump driven off the same shaft. Both intake and exhaust manifolds are cast with the cylinders, the latter being waterjacketed. The carbureter



RIGHT HAND SIDE OF 15-HORSEPOWER BRASIER FOR 1911



GEAR BOX AND REAR AXLE OF THE TWO-CYLINDER GOBRON

is on the right hand side, and although there is nothing unusual in its design its method of mounting is interesting. Instead of being placed on a level with the frame, it is attached directly to the body of the cylinders, the air intake chamber being level with the top of the motor. This gives absolute accessibility, but it makes gravity flow of gasoline rather precarious even with the tank under the seat. On this account the motor is equipped with an air pump, working off the camshaft and having the connection for the piping on the left hand side of the motor, just to the rear of the magneto.

The crankshaft is mounted on four plain bearings, the center ones being between the second and third and fourth and fifth cylinders. A honeycomb radiator with belt-driven fan behind it is of the standard Panhard type. Lubrication remains unchanged, and the engine control is the same as on the small four-cylinder models, namely, by accelerator pedal only, the ignition point being fixed.

Features of the Brasier

The feature of the Brasier output for 1911 is the attention paid to small cars. The most interesting of these are a 15 horsepower monobloc of 3.1 by 5.1 inches bore and stroke, and a smaller model of 2.6 by 4.3 inches bore and stroke. While the small model, rated at 11 horsepower, has a two-bearing shaft carried in plain bearings, the 15-horsepower type has a central bearing. Otherwise the design is similar. En bloc casting with integral waterjacketed intake manifold, but separate exhaust manifold. Valves all on one side, operated from below, and thermo-syphon water circulation with cooling assisted by a fan.

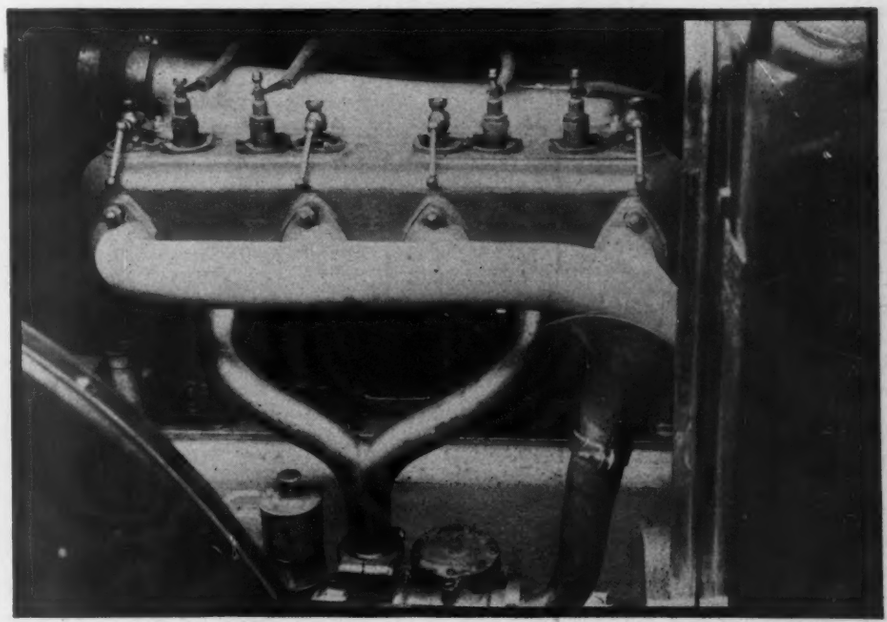
Lubrication is assured by forced feed to all the bearings, the oil being carried in a tank on the right hand side of the motor, with the pump within the tank. To prevent over-lubrication, an arrangement is provided by which the flow to the motor can be interrupted, the oil leaving the tank and returning to it immediately. The control for this is by means of a small level on the dashboard. Chassis features of the small model are leather clutch with springs behind the leather; three-speed gearset; final drive by propellershaft. On the 15-horsepower car the clutch is of the multiple-disk type and four speeds with gate change are provided. Shock absorbers are fitted to all four wheels.

High-tension ignition is now employed on all Brasier models, replacing the low-tension formerly used on some of the smaller cars. As a matter of comparison it is interesting to note that the firm produces eight distinct models, although its output is not by any means so large as that of Renault, de Dion or Panhard. Starting with a two-cylinder of 3.5 by 4.7, it increased to four-cylinder monobloes of 2.6 by 4.3, 2.7 by 4.7, 3.1 by 5.1; four cylinders in pairs of 3.5 by 5.5, 4.7 by 5.9, a six-cylinder in two sets of three measuring 3.3 by 5.5, and a six-cylinder in pairs of 4.4 by 5.1 inches bore and stroke.

Gobron is this year making a bid for popularity by the production of a two-cylinder model built on his well-known principle of two pistons per cylinder. With a bore of 3.5 inches the stroke is 7 inches, the motor is rated at 12 horsepower. A feature of the chassis, a very robust construction for the power available, is the provision made for a variable inclination of the steering column.

Another new type is a specially light 40-horsepower car with cylinders measuring 4.3 by 9.8 inches. Here, instead of the valves being all one side as is usual, they are superposed, the compression chamber being reduced in area in order to assure a much higher compression than is generally employed. The clutch is a double type, a small diameter metal-to-metal cone first coming into operation, with a large diameter leather-faced cone taking hold after a lag of about 1 millimeter.

Probably a dozen firms will offer cars having the driver's seat on the left, with change of speed and brake levers in the center. Among these are Renault, Charron, Chenard-Walcher and Bayard-Clement.



VALVE SIDE OF 15-HORSEPOWER BRASIER FOR 1911

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More Selling Centers Needed

SEVERAL manufacturers of motor cars have been too aristocratic up to the present time. They have considered a selling force adequate, which has consisted of branches in perhaps eight or ten of the leading cities in the country. They only have cared for the trade in the big cities; that is, those with populations of over 300,000. Up to the present a few branches and salesrooms in these cities have been sufficient, but today they are not, and those makers who find themselves with some 1910 cars yet to be sold have brought themselves into the present condition by not having enough branches or salesrooms. It is good-sounding logic to say that the Kansas City branch controls the states of Kansas, Oklahoma, Nebraska, western Iowa and the eastern Dakotas, but it is a long distance from Kansas City to a city of 50,000 or 60,000 in South Dakota, and if a Dakota citizen wanted to buy a car from a Kansas City branch he would find it much more difficult than buying from a manufacturer who has a small agency right in the city in which the buyer resides. It is a fact that many makers have been losing out in sales because of not having enough agencies. Some manufacturers will refuse to open an agency in a small city because they consider it would not pay them to open a branch in harmony with their other branches, and rather than reduce the lavishness of their selling arrangements they prefer to remain without representation in many cities.

THE folly of so many manufacturers in this respect has been realized by several makers of medium-priced cars. The manufacturer with a medium-priced car realizes that it is easier for him to sell in the cities of 50,000 and 60,000 population than it is in one with 300,000. As a result the medium-priced car has multiplied wonderfully in the smaller cities, and the best kind of missionary work has been done by these manufacturers because of the multiplicity of agencies which they have opened. It is not unusual to see one garage man in a small city handling six or seven different makes of cars. In some cases they are cars of the same selling price and practically the same horsepower, so that the rivalry which would exist among such cars in a large city is not noted in the smaller cities. It is these garage men who are proving big helps to the industry at the present time. They are men who have been on the ground during practically all of their life and are familiar with the people and have their confidence.

HAND in hand with the development the industry is receiving by the establishment of agencies in small cities, is the impetus that has been given it by the country fair. Those manufacturers who have exhibited their models at the many country fairs this year have invariably found ready buyers in the farmer class, which invariably visits the show. The motor car has in many cities, during the present fall, become as much a part of the country fair as the threshing machine or the steam plow. This is a healthy indication, because it is meeting the farmer in his own field, and it will be easier to interest the farmer in a car at the country fair than at the motor car show in the spring, for the farmer has more money in the fall than in the spring and is in a more receptive mood to talk car and perhaps purchase one.

Winter Body for the Car

WITH the approach of winter it is natural that many of the unsightly makeshift winter bodies will be in evidence; many owners will attempt to convert an open touring car into a limousine with square yards of side and front storm curtains and mica windows, whereas others will convert a runabout into a closed type by the addition of some locally-made monstrosity passing by the name of coupe. All of these unsightly efforts on the part of owners suggest a shortcoming on the part of the manufacturer. Translated, these efforts mean that the owner wants to use his car the year round, and that the manufacturer has not gone as far as he should in making the car a satisfactory all-the-year-round vehicle.

GOOD progress is being made by many concerns that have dropped the carriage business in the last year, and have taken up the motor car body-building work. Several of these concerns have brought out a commendable form of coupe in which the runabout body is not destroyed, but left intact for the following summer. These concerns have developed a coupe body which fits over the runabout seats and anchors around the dash, the design being modified according to the necessities of the different makes of cars. These coupe types are comparatively cheap, because the addition of a body does not call for a seat with its upholstering or an elaborate framework, but on the other hand, utilizes as much as possible the parts of the old body and does not mar these during the winter use. This is a practice that manufacturers should take up themselves.

IT IS expected that the French motor car show, which will be held in Paris early in December, will prove one of the big boomers to the French industry. The French manufacturers suffered materially by not having a show last year. This loss was made greater, due to the magnitude that the English Olympia show attained, and also because of the many French manufacturers who exhibited their products at the British show. The discontinuance of the original Paris salon last year was directly due to the cost, and the cost was due to the lavish display of different exhibitors by way of decorations for their exhibit spaces, the manufacturers feeling that the value of the show to them was in direct proportion to the amount of money they spent constructing brilliant electric designs for their exhibits in the Grand Palais. This year the French club is a secondary factor only, the manufacturers themselves being the real dictators. As a result this year's show is to be a business show and not a society parade. Instead of individual decorations for the different exhibit spaces a uniform system is to be used throughout the entire show, this being in imitation of the principle established in Chicago several years ago and now followed practically at all of the American shows. This recent change in the Paris show is a healthy one and is prima facie proof that the Frenchman has got down to plain business instead of indulging in useless display. It means that the industry is sufficiently solidified to attract without the glamor that was made necessary a few years ago. It means also that the French manufacturer has realized that the stability of the industry will depend on the purchasing ability of the masses, rather than on the car serving the role of a luxury to the few.

COMMERCIAL CAR ENTERPRISES IN CANADA

DETROIT, MICH., Oct. 17—The past week witnessed the organization of the first Canadian commercial motor car company. All the parties interested in the new enterprise, with one or two exceptions, are business men of Windsor, just across the river from this city. The company will be known as the Candian Commercial Motor Car Co. and will manufacture the Candian, with a capacity of 1,800 pounds. The capital stock is $40,000. Celestine Thibault is the principal backer and president of the concern. The other officers are: Vice-president, J. G. Gagnier; secretary-treasurer, Charles R. Tuson; general manager, Charles F. Howse. Ernest D. Craig, who was active in the promotion of the company, will be sales and advertising manager. The company has begun manufacturing operations temporarily in a machine shop, but expects to have a factory of its own within a month. The plant formerly occupied by the Windsor Brewing Co. is being remodeled for this purpose.

News comes from Hamilton, Ont., that a deal has been practically closed there for the merger of the Baynes Carriage Co., of that city, the American Road Machine Co., of Canada, located at Goderich, and two Detroit motor car companies, under the name of the Acme Motor Carriage and Machinery Co., with a capital of $1,000,000. Motor cars will be the principal output and a large factory will be erected in Hamilton at once, on the present site of the Baynes Carriage Co.'s works, according to present plans. The Goderich plant is to be abandoned. The names of the Detroit concerns involved in the merger are withheld for the present.

Reo Buys the Owen

It is officially announced that the Reo Motor Car Co., of Lansing, is about to take over the Owen Motor Co., of Detroit, negotiations having been practically closed. The full details have not been given out, but it is understood that the local company's factory at East Grand boulevard and Mount Elliott avenue will continue in operation for the present at least, until arrangements can be made for manufacturing the Owen car in Lansing. Ralph Owen, general manager of the Owen Motor Co., will then go to Lansing to take charge of that end of the business. "We will manufacture the Owen car without the slightest alteration in any detail," says R. E. Olds.

Officers of the Owen company have been in Lansing for the past day or so arranging the details of the merger. Within 30 days, it is expected, the transfer will be complete. So far as known, Mr. Owen will be the only officer of the concern that bears his name who will be connected with the Reo company. The Owen Motor Co. is capitalized at $500,000 and its output has been about 500 cars per year. The Reo Motor Car Co. is a $1,000,000 concern.

Dominion Becoming Interested in Manufacturing—Trade Gossip From Detroit

The E-M-F Co.'s advertising campaign seems to be bearing fruit. The sales department claims that the orders last week averaged 200 per day. The company at this time is turning out about sixty-five 30s and thirty-five 20s per day, and is planning to increase the output in the near future.

The completion of the large addition to plant No. 1, at Piquette avenue and John R street, will be formally dedicated by a ball Tuesday evening, for the special benefit of the office force. One of the floors of the addition is being elaborately decorated for the occasion and a very sumptuous luncheon will be served. Clarence H. Booth, who has been in charge of the E-M-F plant No. 5, where all the pressed steel work is done, has been transferred to the position of works manager of plant No. 3, a more responsible post, as plant No. 3 is the largest in the E-M-F group. He will have charge of about 2,000 men. Mr. Booth formerly was prominently identified with the manufacture of pressed steel bathtubs, and joined forces with the E-M-F when his factory was taken over by that concern.

Some seventy sales managers of the General Motors Co. met in Flint last Wednesday and Thursday to discuss plans for the selling campaign of 1911. Holders of General Motors stock here are in receipt of a circular letter that is being sent out by the officers, inviting them to surrender their certificates for voting trust certificates issued by the voting trust that has assumed control of the property. Heretofore trading in General Motors stock has been confined largely to Detroit and Chicago, but the listing of the trust certificates on the New York stock exchange will create a much broader market and, it is expected, will result in a higher and more stable price. Local brokers are divided in their opinions as to the advisability of exchanging the stock. Some are advising their clients to hold onto it, while others, believing that the wider market will enhance the value of the securities, are urging them to take the trust certificates.

General Motor's Bond Issue

About half the $15,000,000 General Motors bond issue has been sold, according to reports current in local financial circles. Some of the bonds have been disposed of in Michigan, while a large share of them have been sold in London and Paris, according to these reports. One of the first results will be the paying off of the obligations against the General Motors Co., including those against the Buick plant, and holders of this paper will receive their cash very shortly, it is understood. A conference is scheduled here for tomorrow, at which James J. Storrow, senior partner of Lee, Higginson & Co., is expected to be present. Mr. Storrow is given credit for having worked out many of the details of the finance plan.

The General Motors Co. of Michigan has just increased its capital stock from $10,000 to $100,000. This is another result of the closing of negotiations for the big loan in New York recently.

Three Detroiters—Joseph R. Drake and Thomas M. Hanlon, both of whom are connected with the Hupp Motor Car Co., and Will B. Wreford, local sales agent for the Columbia cars—are planning a 40,000-mile trip around the world in a Hupmobile touring car, one of the first of the new models to leave the factory, starting about November 1. The tour will embrace the United States, the Hawaiian islands, Australia, the Philippines, China, South Africa, Europe and England. This will be easily the longest motoring trip ever undertaken.

Detroit is to have a novelty next year in pay-as-you-enter motor cars. The park and boulevard commission will use them to carry passengers across the Belle Isle bridge. Bids on the buses were opened last week, and the Standard Auto Co., representing the Packard Motor Car Co., was found to be lowest, at $4.750 per machine. The only other bidder was the Grabowsky Motor Wagon Co., whose price was $5,900.

Coming Motor Events

October 21-22—Commercial vehicle test of Boston American.
October 21-25—Washington-Richmond reliability of Washington Post.
October 27-28-29—Track meet at Dallas, Tex., of Dallas Automobile Club.
October 28-29—Commercial vehicle tests of New York American and Chicago American.
October 29-30—Reliability run in New Jersey, of Automobile Club of Hudson County.
November 3, 4 and 5—Race meet of Atlanta Automobile Association, Atlanta speedway.
November 5-6—Track meet at New Orleans, La.
November 5-7—Los Angeles-Phoenix road race of Maricopa Automobile Club.
November 7—Track meet of Maricopa Automobile Club, Phoenix, Arizona.
November 10-12-13—Track meet at San Antonio, Tex.
November 7-11—Five-day reliability run of Chicago Motor Club, 200 miles a day.
November 11-12—Small-car races and Grand Prix at Savannah, Ga.
November 24—Santa Monica road race, Los Angeles, Cal.
November 26-27—Motordrome meet, Los Angeles, Calif.
December 3-18—Annual salon of Automobile Club of France.
December 25-26—Motordrome meet, Los Angeles, Calif.
December 31-January 7—American Motor Car Manufacturers' Exhibit Association show, Grand Central Palace, New York.
January 7-14 and 16-21, 1911—Show of A. L. A. M., Madison Square garden, New York.
January 15-21—Annual Detroit show.
January 28-February 4—Annual Chicago show of N. A. A. M., pleasure cars.

Savanah Prepares For Grand Prix

At Savannah—Oiling Dale Avenue on Course

SAVANNAH, GA., Oct. 17—Having nailed the grand prix, the Savannah Automobile Club now is engaged in preparing for the speed carnival which is scheduled for November 11 and 12. Most important of all, of course, is the work on the circuit, but the progress has been such within the last few days that it is expected that it will be completed at the end of the week and ready for use. More than 500 men are at work at the present time, and 100 carloads of gravel are being oiled, and it has been determined to cut the long hairpin turn, which some of the drivers wish to retain.

As it stands now the course is 17.5 miles in length and has seven turns. It has been decided to locate the stand at Fifty-second street and Waters road. The grand stand with reserved seats will be on the west side of the course and the general admission stands on the eastern side, but a little farther south. Parking spaces will be on each side of the reserved seats put on the course. Dale avenue is being stands. Each of the stands will be 1,000 feet long and each will seat 20,000 people.

For the small-car races on the first day two trophies have been provided, one of which is the Savannah challenge cup, which was contested for 2 years ago at the March carnival, when it was won by Strang in the Isotta. This cup has been recalled and will be hung up in the 231-300 class event, which is to be fifteen laps or 277 miles. Besides getting the cup, the winner will receive $1,000 in cash and a silver bale of cotton. The Tiedemann trophy is named in honor of the mayor of Savannah and is hung up in the 161-230 class, in which the distance is to be 185 miles, or ten laps. Besides the cup, the winner gets $1,000 in cash. In the grand prix itself, besides the cup, there is a cash prize of $4,000 for first, $2,000 for second, and $1,000 for third.

It is expected that Wagner, Nazzaro and de Palma of the Fiat team will be here tomorrow and that the Benz outfit will arrive before the end of the week. There is every reason to believe that at least twenty cars will run in the big race, it being rumored that there are three Nationals and as many Pope-Hartfords coming, in addition to several other prospectives.

At Savannah—Working on Montgomery Road

Fiat Team Arrives

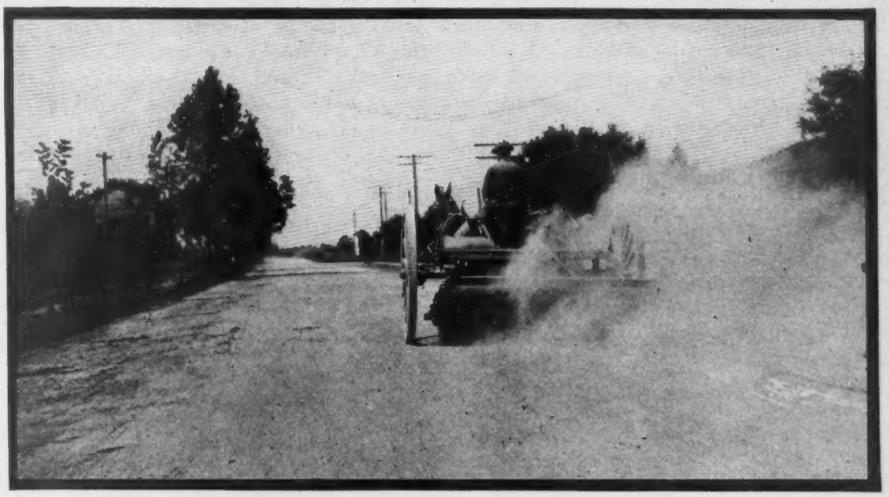
New York, Oct. 15—Louis Wagner, who won the last grand prize race at Savannah, is yearning to go south for this year's big international race at Savannah. He arrived in New York in time to witness the Vanderbilt cup race at Long Island, and since then has spent his time sight-seeing with Nazzaro, who, together with Ralph de Palma, forms the Fiat racing team. When interviewed at his hotel this week Wagner, speaking through an interpreter, made the following interesting comment. Wagner speaks a fair amount of English, but when discussing race matters prefers to speak in his native tongue:

"This year I expect to break my record for the Savannah course, which stands at 65.2 miles an hour, chiefly because I learn that there are to be fewer turns in the course than that of 1908. I believe that I, or any other driver for that matter, would have a hard time lowering that record on the old course with its 260 turns to negotiate during the 402 miles. There is, of course, no chance of my equalling the world's road race record of 74.5 miles an hour, made by my teammate, Nazzaro, in the Florio cup race. This was on a smooth quadrilateral course with only four turns and four long stretches. However, the record was most remarkable. You ask me if it is difficult to keep my 90-horsepower car on the turns and narrow sections of the course going at the speed I expect to attain. No, I do not fear that at all, knowing my car as I do. It is a mistaken impression that it becomes highly difficult for a skilled driver to steer correctly at a speed of 80 miles an hour. I have been driving cars for years and keep my racer on the road as if by instinct. Of course an amateur with but little experience cannot appreciate what this means. When going at this speed it is wind resistance with its tendency to flatten you out against the seat back and tear you apart, against which a driver has to contend. Tires, however, are an element that have to be taken into consideration most seriously, for they have much to do with the average speed attained. Taking the turns is hard, indeed, on tires. Even though the curve or angle is rounded perfectly by a car there is a big strain on the tubes.

"Our team is trusting that before long our cars can be removed from the steamer Moltke, which is now quarantined with cholera cases on board. Even though Nazzaro, de Palma and myself do not care to do any speeding at present, we should like to get at our cars to do some work on them."

Santa Monica Road Race Certain

LOS ANGELES, Cal., Oct. 15—Entry blanks are out for the second annual Santa Monica road race, which will be run Thanksgiving day. Manager Dick Ferris has made the big-car race an open event. The other two events will be for stock cars. Ten thousand dollars in cash prizes has been guaranteed for these races, in addition to the $1,000 Ferris trophy and the $500 Leon Shettler cup. The entry list in each event is limited to sixteen, the course is 8.2 miles around, and in order that there will be no repetition of the Vanderbilt accidents the rule providing that there can be only two cars to a mile will be strictly adhered to. Thanksgiving eve and morning will be a case of roses, revelry and races. The course will be lighted up the night before, and there will be all kinds of sports provided for, such as a barbecue, a football game, dancing, skating, a midway, vaudeville show, and a confetti battle along the ocean front. As planned, this will be a typical California celebration, with the racing starting at daylight. The city of Santa Monica has appropriated necessary money to fix up the road and guard the course. Sixteen cars were entered last year, and it is expected that as many will race this time for the big prizes. The first sixteen entry blanks to be received will be the sixteen to start. An entrance fee of $250 has been named, and in each race this will be divided 70, 20 and 10, with a guaranty of $2,000 to the race. The Portola road race in San Francisco is scheduled for Christmas day. Manager Ferris left yesterday to confer with San Francisco people regarding this race.



AT SAVANNAH—CLEANING COURSE BEFORE OILING

AT SAVANNAH—WIDENING TURNS ON COURSE

FAVOR HIGHER FREIGHT RATES

Kenosha, Wis., Oct. 17—The big manufacturers of Kenosha, including the Thomas B. Jeffery Co., Badger Brass Mfg. Co. and others in the motor industry, created some astonishment when after an executive session a statement was issued declaring themselves to be in favor of reasonable advances in freight rates—from 8 to 12 per cent. The manufacturers represented in the association manufacture products annually to the value of $60,000,000 and pay a total of $2,000,000 in freights. The statement says in part:

"In our judgment, freight rates should be advanced horizontally, covering every commodity in the United States, without discrimination in favor of one against the other, by a fair amount. We favor from 8 to 10 per cent advance. From that point questions of adjustment of all inequalities should be settled on their merits. Our reason for favoring an advance is that the present transportation facilities are totally inadequate to the proper handling of the traffic of this country. The consumer would be benefited by more prompt service; the producer and manufacturer, by being able to conduct his business with less money involved and to get his goods to the market and into the hands of the consumer in better order and with less time consumed; the wage earner would be benefited by the enormous expenditure of capital required to properly bring our transportation companies up to the standard required; the investor in railway stocks would have a safer investment."

A. A. A. SUSPENDS OLDFIELD

New York, Oct. 19—Special telegram—At a meeting of the contest board of the American Automobile Association held here today the board by vote indefinitely disqualified Barney Oldfield as an entrant, driver and owner from participating in future sanctioned events. The disqualification also covers the 200-horsepower Benz car driven by Oldfield. In addition to this disqualification the board also disqualified William H. Pickens and Alex Sloan, both of whom are associated with Oldfield.

The Oldfield disqualification was due to two counts—first, to the publicity relative to his match race in an unsanctioned event, which was contrary to the rules, and, second, to his action at the recent Readville track meet in driving his Benz car in a mile trial on the track against the orders of the referee of that meet. The explanation offered by President Speare for Oldfield's getting on the track at Readville was that he practically ignored the course or track authorities. When the hour race was over, the big Benz, which had been parked in the infield, was run onto the track, and, although attempts were made to stop it, the car made two circuits, one for a trial, and the second circuit for the time.

The official timers did not time the lap, but it is reported that newspaper men took the time. It comes that Oldfield had been warned of his disqualification and the police at the track were told not to let the car onto the track, but in spite of such warnings he did not have the slightest difficulty in getting on the course.

UNITED STATES MOTOR CO. INVADES EUROPE

NEW YORK, Oct. 17—For the purpose of establishing an English motor car company which will be affiliated with the United States Motor Co., President Benjamin Briscoe, of the latter organization, sailed for Europe today from New York on the Lusitania. He was accompanied by Mrs. Briscoe and will be in Europe 5 weeks.

While the trade has known of President Briscoe's contemplated European trip for some time, the announcement that the big motor car selling organization was to manufacture American designed cars in Europe came as a complete surprise to manufacturers and the trade in general.

It is likely that the English concern will be known as the United Kingdom Motor Co. and will be located near London. Several sites have been considered, but the exact location of the plant will not be determined until Mr. Briscoe has had an opportunity to personally inspect various plants which have been under consideration.

The officials of the United States Motor Co. have been investigating foreign conditions for some time and have come to the conclusion that there is a large demand for certain types of cars which are manufactured in America but which have not been manufactured abroad. There is a special demand for moderate-priced cars and those used for business purposes, such as the Maxwell, Brush, Sampson 28 and the medium-priced Stoddard-Daytons, all of which are affiliated with the United States Motor Co. The Columbia is already firmly intrenched in Europe, 1,500 cars of this make being in use in London, Paris and other European capitals.

It is the intention of the United States Motor Co. to transfer its designs and duplicate tools to England, but it will purchase its machinery in that country. The efforts of the United Kingdom Motor Co. will at first be devoted to the United Kingdom, Germany and Russia. After branch houses have been established in this territory it is likely that the products of the organization will later be sent to all important European countries.

Mr. Briscoe will spend most of his time in England, but will visit some of the important plants in France and study foreign conditions in general.

SIOUX CITY RESULTS

Sioux City, Ia., Oct. 15—The postponement of the track meet of the Sioux City Automobile Club to Friday and Saturday of the present week did not affect the interest in the event and the Hawkeyes enjoyed 2 days of rare sport in which fast time was made. Oldfield's mile mark of :58 for the Woodlawn track was tied by George Clark in the Cutting yesterday, and in addition the same driver landed the 2-mile Woodland track record in 1:56 and the 3-miles in 2:54. The first day's honors went to the Staver-Chicago, Moon, Cutting and Firestone-Columbus. The second day the Falcar, which was not represented in yesterday's events, almost swept the board, the Chicago-made car capturing six of the eight events, the other two going to the Hudson and the Cutting: Summaries:

FIRST DAY

Five miles, 161-230 class—First heat, Cheney, Staver-Chicago, won, time 5:29⅘; Selzer, Ford, second; Wetmore, Hudson, third. Second heat, Forbes, Firestone-Columbus, won, time 5:53½; Von Berg, Cameron, second. Final, Cheney, Staver-Chicago, won, time 5:35; Forbes, Firestone-Columbus, second; Selzer, Ford, third.

Five-mile, 231-300 class—Wells, Moon, won, time 5:24⅘; Cheney, Staver-Chicago, second; Wetmore, Hudson, third.

Australian pursuit race, 600 cubic inches and under—Clark, Cutting, won, time 8:56⅕.

Five-mile, 301-450 class—Wells, Moon, won, time 5:22; Clark, Cutting, second.

Twenty-five-mile free-for-all—Clark, Cutting, won, time 25:57; Wetmore, Hudson, second; Woodruff, Firestone-Columbus, third.

Five-mile free-for-all handicap—Woodruff, Firestone-Columbus, won, time 5:43½; Wetmore, Hudson, second; Cheney, Staver-Chicago, third.

SECOND DAY

Fifteen-mile free-for-all—Clark, Cutting, won, time 15:33⅘; Hughes, Falcar, second; Pearce, Falcar, third.

Ten-mile, 161-230 class—Wetmore, Hudson, won, time 11:17⅘; Selzer, Ford, second.

Five-mile exhibition time trial—Gelnaw, Falcar, won, time 5:20; Pearce, Falcar, second; Hughes, Falcar, third.

Ten-mile free-for-all handicap—Gelnaw, Falcar, won, time 10:39⅘; Pearce, Falcar, second; Hughes, Falcar, third.

Five-mile, 231-300 class—Hughes, Falcar, won, time 5:26; Pearce, Falcar, second; Wells, Moon, third.

Five-mile, 301-450 class—Pearce, Falcar, won, time 5:21⅕; Hughes, Falcar, second; Wells, Moon, third.

Ten-mile free-for-all time trials—Pearce, Falcar, won, time 10:24; Hughes, Falcar, second; Wells, Moon, third.

Ten-mile free-for-all handicap—Pearce, Falcar, won, time 10:28; Hughes, Falcar, second; Gelnaw, Falcar, third.

KANSAS CITY RESULTS

Kansas City, Mo., Oct. 15—So successful was the 3-day Priests of Pallas speed and air carnival of the Kansas City Automobile Dealers' Association that an extra matinee was added for Friday. The first 3 days saw Hughie Hughes in his Falcar as the star, with Cino No. 31 driven by Walter Fritzsch second in honors. On the fourth extra day the Falcar was not in the running, having been shipped to Sioux City and the Cino and Midland No. 14 and Moon No. 18 ran away with places. Summaries:

WEDNESDAY

Ten-mile free-for-all for Kansas City Star trophy, second heat—Donneley, Cino, won, time 10:57⅘; Wells, Moon, second; Nutting, Midland, third; Stanfield, Jackson, fourth.

Five-mile stock chassis—Wells, Moon, won, time 5:35½; Phillips, Marion-Overland, second; Shaw, Parry, third.

Ten-mile free-for-all for Post cup, second heat—Hughes, Falcar, won, time 10:45; Stanfield, Jackson, second; Fritzsch, Midland, third; Wells, Moon, fourth.

Ten-mile stock chassis—Stanfield, Jackson, won, time 11:05; Nutting, Midland, second.

Thirty-minutes race for Journal cup, greatest mileage in 3 days—Hughes, Falcar, won, 29 miles; Wells, Moon, second; Donneley, Cino, third; Stanfield, Jackson, fourth.

THURSDAY

Ten-mile handicap, stock chassis—Wells, Moon, won, time 10:35½; Lexington, second; Hughes, Falcar, third.

Ten-mile free-for-all for Kansas City Star trophy, third heat—Fritzsch, Cino, won, time 10:42½; Stanfield, Jackson, second; Wells, Moon, third.

One-mile slow race on high gear—Chase truck won, time 16:15.

One-mile speed trial—Overland wind wagon, time, 1:07.

Ten-mile free-for-all for Post cup, third heat—Hughes, Falcar, won, time 10:36; Fritzsch, Cino, second; Stanfield, Jackson, third.

Twenty-five-mile free-for-all—Hughes, Falcar, won, time 26:03.; Fritzsch, Cino, second; Wells, Moon, third.

One mile against time—Gillmore, Apperson, 1:02.

Thirty-minute race for Journal cup, greatest mileage in 3 days—Hughes, Falcar, won, 29 miles; Stanfield, Jackson, second; Fritzsch, Cino, second; Wells, Moon, fourth; Dinkledge, Great Smith, fifth.

FRIDAY

Ten-mile invitation race—Phillips, Marion-Overland, won, time 11:20½; Shaw, Parry, second; Regal, third.

Ten-mile challenge race—Nutting, Midland, won, time 10:18¼; Lindel, Lexington, second; Fritzsch, Cino, third; Cino, Velie, Staver and Apperson started.

Five-mile novelty race—Boyd, Haynes, won, time 10:57; Shaw, Parry, second.

Ten-mile Australian pursuit race—Fritzsch, Cino, won, time 10:35⅘; Lindel, Lexington, second.

Twenty-five mile free-for-all—Fritzsch, Cino, won, time 26:42⅕; Stanfield, Jackson, second. Nutting, Midland, third.

FAIRMOUNT PARK AFTERMATH

Philadelphia, Pa., Oct. 15—With the presentation of the awards on Thursday evening at the close of the performance at the Chestnut street opera house, the great Fairmount park road race passed into history. The victorious Chadwick car, in which were seated Len Zengel and his mechanician, occupied the position of honor in the center of the stage, surrounded by the trophies and officials of the Quaker City Motor Club, sponsor for the event. Mayor Reyburn was the guest of honor and handed checks to the winning drivers and the various trophies to the winners of division prizes. President L. D. Berger, of the Quaker City Motor Club, was master of ceremonies, and addresses were delivered by H. C. Harbach, secretary of the Quaker City Motor Club; George M. Graham; R. E. Ross, chairman of the contest committee; and four others.

Paul B. Huyette, official timber of the Quaker City Motor Club, has issued a supplementary report of the fastest lap made last Saturday in the Fairmount park race, wherein the fastest time for the 8.1 miles is credited to Chadwick car No. 12, Len Zengel driver, 7:57, made in the seventh lap. The Marmon driven by Harroun, which was said to have established a new mark for the course of 7:38, negotiated the distance in 8:38. Thus the time set by Zengel last year in his Chadwick car, 7:41, is still the best.

The victorious Chadwick and the cup given as a trophy for the victory are on exhibition at a local department store, the objects of much attention from motor enthusiasts.

The Philadelphia North American will conduct a roadability run of electric pleasure vehicles November 11 through Philadelphia and its suburbs. Officials of the Quaker City Motor Club will be in charge, with R. E. Ross referee, G. Hilton Gantert starter and Paul B. Huyette timer. The distance to be covered will be 50 miles, a secret time for which will be established

in advance, the car finishing nearest to it to be declared the winner. Entry blanks will be issued Monday, and, judging by the interest displayed by manufacturers and agents, the run will be fully as successful as the motor truck run conducted by the same paper last summer. By conducting the run through the city and its suburbs the event will have the effect of showing the advantages of this form of car for town and suburban use.

The fall roadability run of the Automobile Club of Philadelphia, scheduled for Saturday and Sunday, October 15 and 16, to Atlantic City and return, was called off owing to the lack of sufficient entries and the lateness of the season, although when the change from the original dates was made the later date was expected to prove an ideal one, coming at a time when it was thought the crisp weather would add an incentive to enter.

CHICAGO'S BIG RELIABILITY

Chicago, Oct. 19—Every indication points to the 1,000-mile reliability run of the Chicago Motor Club, set for November 7-11, being one of the most important tests of its kind of the year. Already entered are three Molines, two Abbott-Detroits, and one each of the Falcar, Halladay and Brush, while it is expected entries will be forthcoming from the Thomas, Winton, Haynes, Royal Tourist, Kisselkar, Ford, Velie, Imperial, Speedwell, Cunningham, Staver-Chicago, Black Crow, Case, Henry and Regal, representatives of these cars now having the matter under consideration. A $500 trophy for the winner in the touring car division has been given by the Stewart & Clark Mfg. Co., while the Van Sicklen cup, given by N. H. Van Sicklen, Sr., will be the prize in the runabout division. The Van Sicklen cup is to be contested for three times, the car with the best score in the three runs to keep it.

J. P. Dods, official scout for the Chicago Motor Club and representative of the Automobile Blue Book, and Charles F. Van Sicklen, driver of the Falcar which served as trail-blazer in laying out the route for the reliability run, completed their work yesterday when they rolled into Chicago with all the necessary road data for the big reliability run. In the week they were out they covered more than 1,150 miles in the Falcar, which is longer than the reliability run route, but which was necessary in order to investigate the best roads. As reported by Scout Dods, the 5-day run will cover exactly 1,002.7 miles, with the last day the longest—221.4 miles. In nearly every town through which Dods and Van Sicklen passed they were given enthusiastic greetings by local motorists, who promised a warm reception to the contestants in the tour when they pass through their towns next month. Rockford, Dixon, Sterling, Champaign, Bloomington and Springfield were especially enthusiastic over the reliability. As reported by Scout Dods the itinerary of the reliability run will be as follows:

First day, November 7, starting from Chicago—Elgin, 37.5 miles; Marengo, 60.7; Belvidere, 72.4; Rockford, 86.7, noon stop; Bryan, 101.4; Dixon, 129.1; Lydon, 156.1; Erie, 165.4; East Moline, 189.6; Moline, 194; Rock Island, 197.3, night stop.

Second day, November 8—Milan, 4.7; Alpha, 29.3; Henderson, 41; Galesburg, 46.9; Galva, 75; Kewanee, 84.8, noon stop; Sheffield, 99.6; Princeton, 114.9; Henry, 138; Chillicothe, 159.7; Peoria, 179.5, night stop.

Third day, November 9—Pekin, 11; Springfield, 69; Jacksonville, 104; Springfield, noon stop, 139; Lincoln, 177; Bloomington, 217, night stop.

Fourth day, November 10—Clinton, 24.4; Maroa, 33.1; Decatur, 46.6; Monticello, 81.1; Champaign, 104.1, noon stop; Paxton, 135.3; Kankakee, 187.5, night stop.

Fifth day, November 11—Dwight, 30; Streator, 54; Ottawa, 69.5; LaSalle, 85.7; Mendota, 102.7, noon stop; Somonauk, 130.9; Plano, 140.9; Aurora, 157.9; Joliet, 180.7; Chicago, 221.4.

OLDFIELD AT BOSTON

Boston, Mass., Oct. 15—Barney Oldfield came here yesterday and he certainly put one over on the A. A. A. officials when he went out on the track, as he said he would, and with President L. R. Speare looking on dashed around a mile in :50, beating de Palma's :54 made on the same track 2 years ago. Now that it is all over there may be some loud talk, etc., but the real facts are that it was no very great surprise that Oldfield stole a march on the officials. It is said some of the officials at the meet were in sympathy with Oldfield and they were willing he should do something because of the crowd present. It was tacitly understood, though not officially so, that after the races ended the meet would be declared closed and then Oldfield could do as he pleased. President Speare of the A. A. A. was probably not in favor of this, and as it was getting dark Oldfield took matters in his own hands and pulled off the trick.

VAN SICKLEN CUP, CHICAGO RELIABILITY

Had the affair been carried along properly from the beginning there would have been a lot of money made. W. W. Wellman started it going by visiting Boston and asking E. A. Gilmore, of the Bay State racing committee, if he would be willing to get a sanction for the meet if the Bay State club were given $100. He said he would not call a meeting of the committee for that sum. So Wellman went to Speare and secured a sanction, much to the surprise and chagrin of members of the racing committee. In other words, some of the men were sore. Wellman then visited the newspaper offices and canvassed the feeling of the motor writers. They were willing to print the news, but not with scare head pipe-dreams. Then the Oldfield-Johnson thing cropped up and the Bay State A. A. was notified by Chairman Butler that the sanction had been withdrawn. That put a crimp in the plans, apparently, but Wellman got busy with the telephone and convinced Butler another sanction should be granted and it was, with the understanding Oldfield would not race. Oldfield came to Boston then and it was a foregoing conclusion that he would go on.

There were six starters in the hour race—two Simplexes, an S P O, Jackson, Moon and Knox. No attempt had been made to even water the track, let alone oil it. Kerscher won the event, going 51¾ miles in the hour.

There were two 5-mile events somewhat in the nature of joke races, Nelson Slater in a Lancia winning from John Schuyler in a Firestone-Columbus in 5:50⅘. The other event was won by S. P. White in a Cameron from G. H. Wells in a Moon. The time was 5:39.

While the cars were lining up for the 5-mile handicap Oldfield pulled off his time trial. It was getting dark then and it was decided to call off the amateur event, the mile time trials, and the handicap. The 3,000 or more people who went out got a run for their money by seeing Oldfield and they were satisfied. It was done nicely, the Associated Press reporter being asked to do the timing and he did unsuspectingly, the regular timers and other officials not paying any attention to Oldfield and his spin around the track. President Speare started to call Sloan down, and another comedy was enacted then as the latter talked about his contract with Oldfield, etc. Bill Pickens kept under cover during the storm.

Many Start in Georgia Tour

GEORGIANS ERECT BRIDGE FOR TOUR

ATLANTA, GA., Oct. 18—Special telegram—A tour unique in motoring annals got under way in the state of Georgia, Monday morning, when seventy-six or fewer motor cars began a 9-day circuit of the state. Unlike ordinary tours, the cars did not all start from the same place. The rules of the run merely required five cars to start from a certain point, check in at the appointed night controls at an appointed time, and wind up the run at the place from which the start was made.

Under such a happy-go-lucky arrangement the cars got under way Monday morning. Thirty-five left Atlanta, one left Augusta, one started from Valdosta, one from Bainbridge, two from Thomasville, one from Waycross and six from Albany. These were only a few of the many that started. Just which other cars started and from where they started are mysteries here and will not be known until the checkers turn in their reports. The chief interest in the tour centers around the Atlanta delegation, as it was larger in number than any other.

The Atlanta party got away in good order Monday morning, with the usual Atlanta send-off. The first day's run was to Macon, Ga., over the route that General Sherman made justly famous in his march to the sea. It proved a delightful trip. The roads, which would have been unspeakably slippery if they had been wet, were in fine condition because of the dry weather, and the schedule of 11 miles an hour for the big cars proved considerable of a joke. The tourists took it easy, enjoying the glorious Indian summer weather, the picturesque view of cotton fields, corn patches, low-lying hills and the delightful hospitality extended at various points. The most novel welcome extended was at the little town of Sunnyside, where the school children were gathered under a big American flag to sing songs of welcome to the tourists. Tuesday, the second day of the run, was a duplicate of the first. As the tourists progressed farther south they found the roads far better than in the Atlanta territory, and the speed of the cars was a matter of engine power. An indication of the possibilities was given by a banner stretched across the road as the point of tour entered Sumner county. This banner read: "Reduce speed to 90 miles an hour in this county."

The pacemaker checked out of Macon shortly after 7 o'clock and was followed an hour later by the small cars and then the big ones. The running throughout the day was devoid of incident. The cars rolled along as smoothly as on asphalt and every one registered ahead of time at Albany, the second night's stop. The Atlanta party should reach Bainbridge Wednesday night, Valdosta Thursday, Waycross Friday and Savannah on Saturday night. The Atlantans will spend Sunday in Savannah, incidentally inspecting the grand prize course, and Monday morning they will set out again. Monday night should find them in Augusta, Tuesday night in Athens and Wednesday night home, after which results will be compiled by promoters of the tour.

If the weather continues good it will be a pleasant trip, but if the tropical hurricane, which has been playing the wild and running around in cities near Cuba and Florida, happens to reach Georgia, there will be some handicaps that will make the affair peculiarly interesting.

Following is a list of the cars entered for the tour around Georgia:

Entrant and town	Car
1—W. H. Westberry, Sylvester, Ga.	Halladay
2—Ohio Motor Car Co., Cincinnati, O.	Ohio
3—Maxwell-Briscoe So. Co., Atlanta.	Maxwell
4—Maxwell-Briscoe So. So., Atlanta.	Columbia
5—Buick Motor Co., Atlanta	Buick
6—Primo Motor Co., Atlanta	Primo
7—R. E. Henderson, Hampton, Ga.	Primo
8—Dr. B. L. Bridges, Ellaville, Ga.	Buick 17
9—W. E. Wimpy, Atlanta	Buick 17
10—McFarlan Southern Co., Atlanta.	McFarlan
11—J. W. Callahan, Bainbridge.	Thomas Flyer
12—Atlanta Automobile Association	Lozier
13—W. D. Alexander, Atlanta	Franklin
14—W. E. Aycock, Moultrie	Knox 40
15—Cobb Real Estate Co., Moultrie	Knox
16—J. C. Overstreet, Sylvania	Maxwell, Jr.
17—G. F. Alford, Sylvester	National
18—C. W. Cooper, Thomasville	Cole 30
19—Southern Ruralist, Atlanta	Columbia
20—E. P. Ansley, Atlanta	White steamer
21—St. Elmo Massengale, Atlanta	Overland
22—C. O. Summers, Barnesville, Ga.	Knox 40
23—Atlanta Motor Car Co., Atlanta.	White Star
24—Augusta Chronicle, Augusta	Speedwell
25—F. C. Mahoney, Savannah	Cartercar
26—Southern Bell Telephone and Telegraph Co., Atlanta	Selden
27—C. W. Pidcock, Moultrie	Cartercar
28—Atlanta Chamber of Commerce	Cole 30
29—Atlanta Gas Light Co., Atlanta	Hudson
30—C. K. C. Ausley, Bainbridge	Buick 16
31—Valdosta Board of Trade, Valdosta.	Buick
32—Atlanta Journal	White gas
33—Hon. Phil Cook, Atlanta	Everitt 30
34—R. J. Corbett, Bainbridge, Ga.	Chalmers 40
35—H. H. Tift, Jr., Tifton	Rambler
36—C. H. Caldwell, Bainbridge	Haynes
37—E. B. Durham, Atlanta	E-M-F
38—Abbott Motor Co., Detroit.	Abbott-Detroit
39—Tifton Chamber of Commerce	
40—Dublin Chamber of Commerce	
41—Columbus Buggy Co., Columbus, O.	Firestone
42—Overland Southern Motor Co., Atlanta	Overland
43—Georgia Automobile Exchange, Columbus	Mitchell
44—J. B. Williamson, Ellaville, Ga.	Halladay
45—Thomasville Board of Trade	
46—Baughman Auto Co., Bainbridge.	Overland
47—Dr. J. B. Clark, Eastman	E-M-F
48—Mrs. Walter Payne Brown, Nashville, Ga.	Rambler
49—Mrs. John Keiley, Atlanta	Haynes
50—Dolph Walker, Atlanta	National
51—Z. W. Oglesby, Quitman	Olds Special
52—F. G. Edwards, Albany	Chalmers 30
53—George W. Deen, Waycross	Buick 17
54—Georgia Motor Car Co., Atlanta.	Brush
55—C. W. Hillhouse, Sylvester, Ga.	E-M-F
56—A. H. Pinson, Sylvester, Ga.	Buick
57—Fred Brewer, Waycross	Buick 19
58—B. R. Beck, Eatonville	Overland
59—Dr. H. L. Rudolph, Gainesville.	E-M-F
60—Miss Regina E. Rambo, Marietta.	Columbia
61—Atlanta Constitution	Pullman
62—Georgia Automobile Exchange, Columbus, Ga.	Hupmobile
63—M. R. Flournoy, Columbus, Ga.	Hupmobile
64—Ames Motor Co., Owensboro, Ky.	Ames
65—J. I. Case Threshing Machine Co.	Case
66—Board of Trade, Pelham	Oakland
67—Charles O. Duvall, Douglas	Thomas
68—Daily Telegraph, Macon	Velie
69—Chamber of Commerce, Macon.	White gas
70—Board of Trade, Americus	Mitchell
71—Chamber of Commerce, Athens.	Maxwell 30
72—Board of Trade, Winder	E-M-F
73—Snap-Life Co., Atlanta	Cadillac
74—Gulf Refining Co., Atlanta	Haynes

REPAIRING A BAD SPOT ON ATLANTA SPEEDWAY

Engineers Discuss Frames

CLEVELAND, O., Oct. 19—A division of the standards committee of the Society of Automobile Engineers met in Cleveland this week. It was a session of the subcommittee on frame sections, and the following were present: W. H. Van Dervoort, Moline Automobile Co., East Moline, Ill.; James H. Foster, Hydraulic Pressed Steel Co., Cleveland, O.; L. R. Smith, A. O. Smith Co., Milwaukee, Wis.; W. P. Kennedy, Studebaker Automobile Co., New York; Coker F. Clarkson, general manager Society of Automobile Engineers.

The current practice in frames for motor cars has little uniformity in sizes and proportions of the sections. A smaller number of sections would be sufficient and give the following advantages: Reduce the tool cost; increase the output of all presses by reducing change of tools; reduce the number of different sizes of stock required; reduce the number of variations in the sizes of all parts fastened to motor car frames.

It was the sense of the meeting that the frame as an element of motor car design should receive more attention in the initial stages of laying out a car model, with relation to the disposition of other elements of the machine, such as power equipment, transmission mechanism, springs, axles, body, etc. As an extreme case of putting the cart before the horse, designers have been known to order their motors, transmissions, bodies and other parts before giving the frames, to which they are to be attached, a thought. Of course this is very much of an exception.

The committee in a report to be made at an early date will recommend quality of steel to be used in frames, specifying the chemical composition, physical properties and heat-treatment desired. This is one of the two broad divisions of the subject of standard frame sections. The other broad division is the design of frames generally; and here standardization can be very effective without in any way throttling progress or the development of meritorious new styles of frames. In other words, the frame section standardization will have the absolutely essential characteristic of adequate elasticity. The matter of design will be subdivided somewhat as follows:

SIDE BARS

1—Main section; including the topics; thicknesses of metal, thickness relative to depth of section and width of flange.

2—Standard front ends. Here appears to be a point in which great good can be accomplished. It is said that there are a thousand current designs of frame front ends. These the committee will reduce to possibly a score of front end curves. Naturally this involves a good deal of work by the sub-committee.

3—Standard taper for rear end.

4—Uniform radii of curves and depth of drop for drop frames and double-drop frames.

5—Main width of frame at rear end.

6—Offset of side rail to produce front end width. Proportion of length of offset to amount of offset.

CROSS MEMBERS

7—These are straight and curved. As to the former, matters to be considered are standard radius and length for integral gussets, which should preferably, as a matter of cost of production, be on the cross bars instead of on the side rails; as to the latter—curved cross bars—standard radii and amount of drop of front member. And in general harmony of design with relation to strength and weight of side bars.

SUB-FRAMES

8—Dividing into amount of drop, width between engine bars and taper of engine bars.

GENERAL MATTERS

Diagrams will be produced showing ways of economizing on material to arrive at minimum waste without interfering with merit of design; amount and place of material that should remain after holes are drilled for assembling cars; preferred path for holes; advisable lips and lugs on cross members and outside fittings; spacing of rivets.

STRETCH OF GEORGIA ROAD OVER THE BONNET

FINAL REPORT ON MINNEAPOLIS TRIBUNE RELIABILITY RUN

Name of Car	Driver	Road Penalties Days 1	2	3	4	Total Road Pen.	Tech. Exam. Pen.	Total Pen.	Pts.
1—Corbin	J. H. Zollars	0	0	0	0	0	1	1	999
13—Franklin	C. S. Carris	0	0	0	0	0	1	1	999
5—Chalmers 30	George Roberts	0	0	0	0	0	8	8	992
14—E-M-F 30	S. Rothenberger	0	0	0	0	0	14	14	986
21—Maxwell	E. B. Stimson	0	0	1	0	1	17	18	982
12—Ford	A. A. Hansen	0	0	0	0	0	24	24	976
6—Henry 40	W. A. Wright	0	0	0	0	0	24	24	976
7—Abbott-Detroit	Gilbert Measen	0	0	0	0	0	25	25	975
10—Everitt 30	Mat Miles	0	0	10	0	10	17	27	973
15—Ford	J. McDowell	0	0	0	0	0	27	27	973
8—Glide	Fred Cassel	0	0	0	0	0	38	38	962
11—Regal	Milton Brice	0	0	0	0	0	46	46	954
16—Halladay	O. A. Palmund	15	0	6	0	21	25	46	954
9—Staver-Chicago	Troy Duas	0	0	0	0	0	64	64	936
3—Chalmers 40	J. Butterfield	3	20	0	0	23	68	91	909
18—Patterson	C. P. Davidson	11	0	0	0	11	49	60	900
19—Hupmobile	E. B. Stimson	3	0	75	0	78	281	359	671
20—Maxwell		§	..	..	..	..	..	..	..
17—Hudson		0	0	0	0	0	‡	..	..
4—Pullman		†							
2—Alco	N. C. Nyman	0	*						

*Disqualified under rule 514, A. A. A. †Withdrew second day. ‡Not stock equipment, disqualified. §Withdrew.

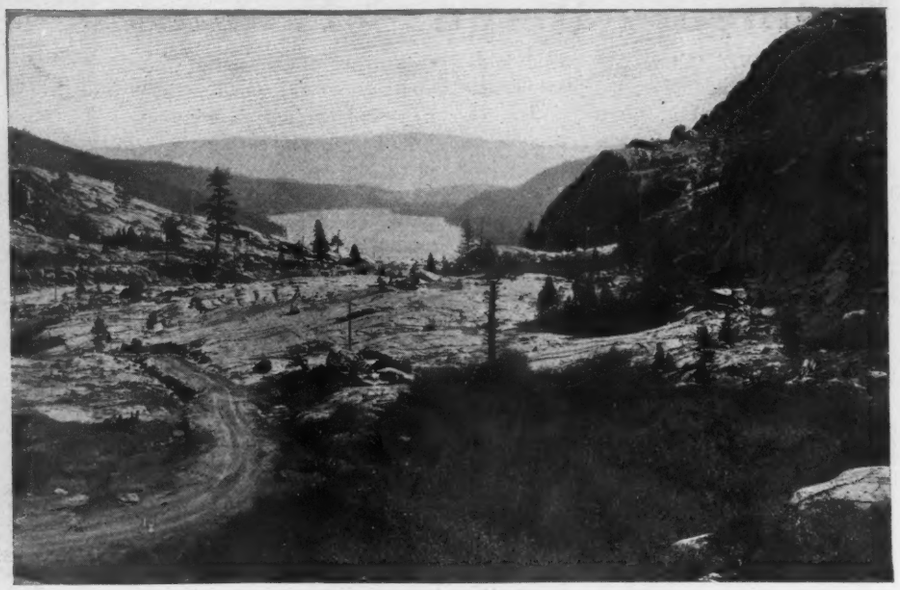
WORKMEN ENGAGED IN OILING ATLANTA SPEEDWAY

TWO TIED IN TRIBUNE TEST

Minneapolis, Minn., Oct. 17—The judges have finally settled all disputes as far as possible and have made their returns in the Tribune reliability run, which was so well fought and which had so many entries as to make the judging a matter of considerable figuring. The Corbin, entered by the McArthur-Zollers company, driven by J. H. Zollers, and the Franklin, entered by the Robertson Motor Car Co., driven by C. S. Carris, are tied for first place, with only 1-point penalty. The Chalmers 30 Bluebird, which went through the Glidden tour and was expected to capture first place, had 8 points demerit.

PICTURESQUE SIERRA MOUNTAIN ROAD

A BIT OF MOUNTAIN HIGHWAY



VIEW OF DOWNER LAKE FROM TRUCKEE PASS

California's Big Endurance Run

SAN FRANCISCO, CAL., Oct. 13—The Pacific coast has had its first real endurance run, and today motordom in this region is discussing the result of the contest and reviewing the work of the different entrants. The run was held under the auspices of the San Francisco Motor Club and covered a 470-mile course from San Francisco to Lake Tahoe and return.

There were eleven entrants in the tour, nine of whom checked in at the finishing control with perfect scores. The tenth was penalized for failing to reach the fifth control on the homeward journey within the allotted time. The eleventh car met with a mishap on the last leg of the journey and was forced to retire from the contest, although up to the time it had crashed into and broken a front axle it had held a perfect score. The cars returning with perfect scores and the drivers were: Buick, Fred Gross; Buick, Frank Murray; Cartercar, E. C. Collins; Crawford, E. Stewart; Ford, E. L. Cutting; Knox, Bert Oaks; Maxwell, C. S. Harding; Rambler, Captain McCauley; Winton, H. L. Owesney.

The two cars failing to win perfect scores were the White steamer, which was penalized for failing to reach one control on time, and the White gas car, which slipped from the road into a ditch and broke the front axle.

The route was a well-selected one to test the reliability of the cars. Every conceivable sort of a road condition was encountered on some part of the trip. During the first portion of the trip fine boulevards were enjoyed; later dusty valley roads were experienced; then came stretches of rough foothill highways, and later came the steep and heavy mountain roads, with sharp curves that overlooked deep ravines. On the homeward trip rain fell and another road condition was encountered. The dusty sections of the road were converted into veritable seas of mud, and as most of the cars had not been equipped with chains, the drivers had much trouble in keeping to the roads.

The run started on Saturday morning at 7 o'clock, the cars being ferried to Oakland, where the actual start began about 8 o'clock. Checked out at 2-minute intervals, the cars were given 4½ hours to make the city of Stockton, the first control, 84 miles from the start. The time allowance proved a generous one, as the roads were good and all the cars were forced to loaf along toward the end of the journey so as not to check in ahead of time. After an hour's delay, during which time the tourists partook of lunch, the cars were again started.

The second leg of the tour required the motor cars to make Sacramento, 52 miles away, in 2 hours 15 minutes. This schedule, while it was made by all the cars, required some stiff work, as the roads in some places were in poor shape, undergoing repairs, and occasioned delays. A short rest of 15 minutes was allowed at the capital city and the cars were again sent on their course to Auburn, 36 miles away. This route laid through the foothill region and the roads were in bad shape. Two hours time was given to complete the distance, and again all the cars came into the control in the required time, but there was no loafing en route. At Auburn the cars were garaged for the night.

The second day's touring opened with the beginning of the real mountain portion of the journey, in which the cars were forced to ascend some 7,000 feet to drop some 3,000 on the other side of the highest point to reach Truckee. The distance over the mountains was 68 miles, and the cars were given 6 hours 30 minutes to complete the distance. The same story regarding the ability of the entrants to negotiate the

BEAUTIFUL SCENERY FOUND AT EMIGRANT PASS

Results in Many Perfect Scores

distance was noted here and at the other controls, all the cars reaching the goal in required time. The cars were checked out 1 hour later for Lake Tahoe, 16 miles off through the mountain. One hour and a half was given to make the distance, but this time was again too generous and the cars made it within 50 minutes and had to remain outside the control until checking-in time.

Sunday night was spent by the tourists at the Tavern on the lake. Some of the drivers took their cars off for small side trips on the lake shore and added to their mileage.

The home journey began Monday and took in the run from Lake Tahoe to Sacramento, a distance of 122 miles. The cars were given 13 hours to make the control, and all, with the exception of the White steamer, which broke a brake shoe, reached the control successfully. The steamer, after making repairs, met with various other delays in the shape of being stalled by a mountain train that held the road for the good part of an hour until a section was reached which permitted the motor car passing. Then again a freight train prevented it from crossing through the snow shed for some 30 minutes. A rain and thunderstorm in the mountains, which made the going dangerous, reduced the running time, and later, in the darkness, losing the road increased the lost time.

The last portion of the trip began Tuesday morning and embraced 136 miles, from Sacramento to San Francisco, through the San Joaquin and Livermore valleys, Dublin canyon, Hayward, Oakland and by boat to this city. Heading toward the Livermore valley the White gas car slid from the road and crashed into a fence and was forced to remain out of the race. The other cars completed the journey in time to keep their winning scores, although the heavy rain that was falling caused the drivers much difficulty in getting over some of the grades.

All the contestants are enthusiastic over the tour, and an effort is now under way to make it a yearly event. Scenically the course is without a peer in any section of the United States, and as far as the testing of the endurance of the cars is concerned it is without doubt equal to the best in the country.

MILWAUKEE PICKS 1911 ROUTE

Milwaukee, Wis., Oct. 19—The directorate of the Wisconsin State Automobile Association will meet here Friday evening to elect new officers for 1910-1911 and to put its O. K. upon the tentative route selected by the touring board and contest committee for the 1911 Wisconsin reliability tour, the chief prize being the Milwaukee Sentinel's $1,000 trophy. An early start is being made by the association on the arrangements for the 1911 tour, which probably will again be held in the middle of next July. The main reason is that the selection of a route and stimulation of interest at this time will serve to make the run a bigger success than it was this year. It is planned to blaze the trail before November 1 and thus work up interest among township officials to repair bad spots and place the highways under their jurisdiction in the best possible shape before the run takes place. The route is as follows:

First day—Start at Milwaukee, to Sheboygan, Manitowoc, Two Rivers, Kaukauna, Green Bay, Oconto, Marinette, first day's control.

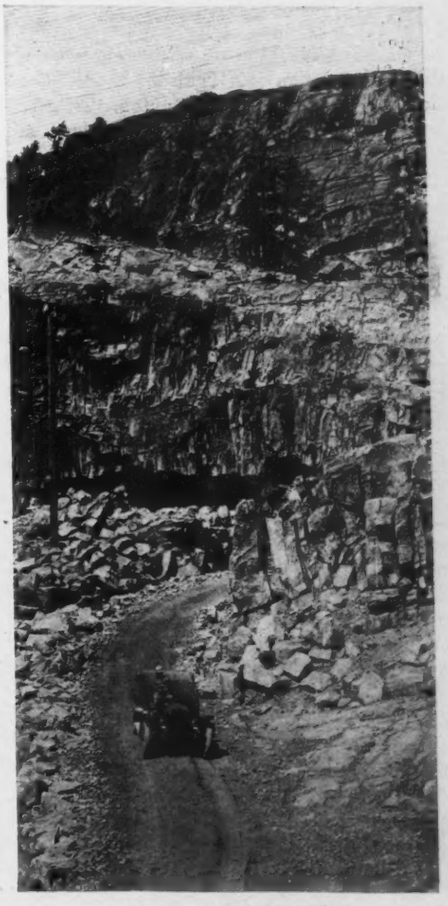
Second day—Marinette to Shawano, Antigo, Rhinelander, Merrill, Wausau, Marshfield, Grand Rapids, second day's control.

Third day—Grand Rapids to Black River Falls, Sparta, LaCrosse, Viroqua, Prairie du Chien, third day's control.

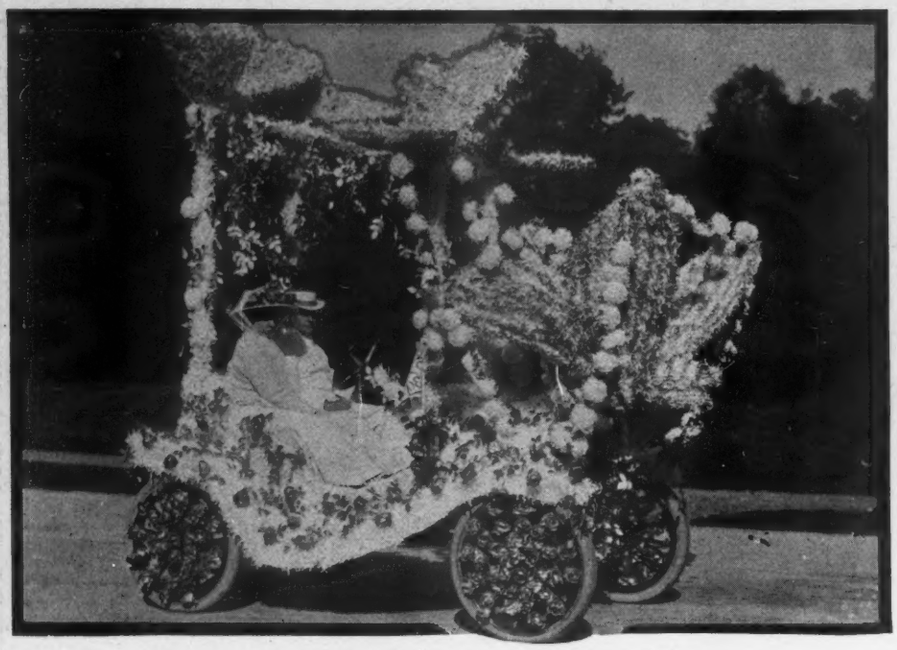
Fourth day—Prairie du Chien to Fennimore, Lancaster, Platteville, Dodgeville, Mineral Point, Darlington, Monroe, Brodhead, Janesville, Beloit, fourth day's control.

Fifth day—Beloit to Lake Geneva, Burlington, Kenosha, Racine, ending at Milwaukee.

A MOUNTAIN TURN



VIEW OF TRUCKEE PASS



At Cleveland—Brush Runabout in Parade

Motor is King at the Spokane Fair

SPOKANE, Wash., Oct. 15 — The Chalmers was king at the interstate fair grounds on Saturday of last week, winning three of the four events which featured the windup of the Spokane fair. H. C. Alderson piloted a Chalmers 30 to victory in the small-car race and repeated in the stunt race of dropping and picking up passengers, while Vance Wolverton won first honors with his Chalmers 40 against the Pullman, Oakland and Stoddard-Dayton. Will Falk, driving a Hudson, won the slow race. The best time of the afternoon was made by C. H. Alderson in a Chalmers 30, who reeled off 5 miles from a standing start in 6:38.

The show which closed Saturday night at the Spokane fair was a huge success. Few cars were sold outright at the week exhibition, but the dealers did not expect to sign contracts—their work was all prospective, and the prospects whose names appear on the reference books of the wide-awake dealers number many hundreds.

"The farmers were the ones who seemed to take the greatest interest in the show," said Harry Bell, of the Metropolitan Motor Car Co., and the other dealers echoed the same sentiment. As for the show itself, the motor hall housed nineteen machines of sixteen different makes, represented by seven local distributers. There was a large display of Stevens-Duryea cars in the overflow exhibit tent. The Velie car shown by the John Deere Implement Co. in another part of the grounds was a small show in itself. The largest display of the show was that of the E-M-F Spokane Co., which showed five cars, ranging from a Flanders delivery wagon to a Studebaker.

The Metropolitan Motor Car Co.'s four-car display was the largest in point of cars represented, if not in actual number, there being the Premier, Lozier, Pullman and Locomobile. The Eastman Motor Car Co. had an electric-lighted Cadillac chassis with every part of the machinery placed in operation by motor and belt. The C. H. Hornburg Co. exhibited Maxwell cars; the L. D. McCarthy Co. had on exhibition the Rambler 1911 line and two Parry cars. Two Kissels and a Regal, shown by the Regal Garage Co., completed the exhibit at the fair grounds.

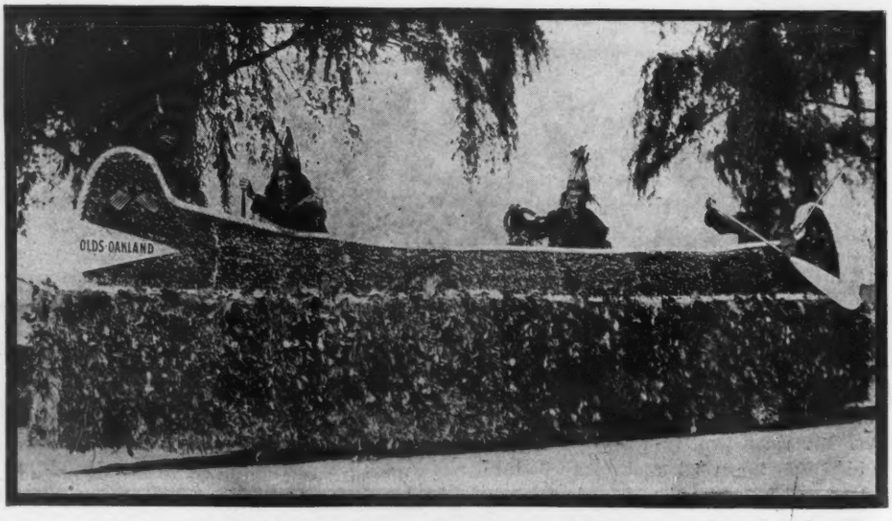
ILLINOIS AROUSED AT LAST

Bloomington, Ill., Oct. 17—A most important step has been taken in the matter of good roads in the state of Illinois by the organization of a state association at Bloomington which will have for its purpose the upbuilding, repairing and general care of every road in the state. The association will be known as the State Association of Township Highway Commissioners and Town Clerks of Illinois. The movement was started at a special meeting of a number of commissioners of the northern part of the state, held at Aurora last June, at which time George W. Haywood, of Joliet, was chosen president and W. D. Hill, also of Joliet, was named secretary. It was decided to issue a call for a state meeting to be held in Bloomington, and the response was generous. The state was divided into eight districts by counties, and members of the executive board were chosen from each district. The officers elected were as follows: President, George W. Haywood, Joliet; vice-president, Clayton Mays, Normal; secretary-treasurer, W. D. Hall, Joliet; members of executive board: B. H. Myers, Naperville; John Schloesser, Bloomington; F. H. Hannifield, Tremont; A. P. Ferguson, Griggsville; Thomas Lyman, Champaign; B. G. Gehrig, Centralia. Decatur was selected as the place for holding the next meeting of the association in 1911.

INDIANAPOLIS HUSTLING

Indianapolis, Ind., Oct. 17—The Indianapolis Trade Association, composed of 250 concerns representing all lines of industry, is host this week for thousands of merchants and dealers of Indiana and Illinois. The visitors will be entertained in an elaborate manner tomorrow, Wednesday and Thursday, and members of the association are preparing to keep open-house during the three days. Since the association was organized a few months ago it has persistently sought to attract new trade to the city. Several trade extension trips have been made and the buyers' week now on is the climax of the association's efforts this season. Each and every one of these trips has been a success, and the jaunts now are most popular with the tradesmen of Indianapolis, who see in them great possibilities.

One of the principal features will be the industrial parade tomorrow night. This



At Cleveland—Oldsmobile as a War Canoe

will be approximately 5 miles long, 164 concerns having entered floats or vehicles or some other form of display. It will proceed along the downtown streets which have the special street lighting system installed recently by the merchants of the city. There will be eight divisions, each preceded by a band. The eighth division will be devoted wholly to motor car interests of the city and will be marked by a display of 1911 models and floats representing the industry. Fred I. Willis, of the Hearsey-Willis Co., has been chosen as marshal. He will be assisted by Carl G. Fisher, of the Fisher Automobile Co., Will H. Brown, of the Overland Automobile Co., and Cecil E. Gibson, of the Gibson Automobile Co. Heading the division will be the band composed of employes of the Overland Automobile Co. There will be a smoker and vaudeville entertainment for the visitors Wednesday night and a theater party at the Murat theater Thursday evening. The entire affair will be of great benefit to local business.

RESULTS AT EL PASO, ILL.

El Paso, Ill., Oct. 14—The Warren-Detroit was the star of the meet held Wednesday and Thursday at the fair grounds, taking five of the seven races. The Buick got the other two. Summaries of the meet are:

FIRST DAY

Ten mile—Hackett, Buick, won, time 12:21½; Gorusth, Warren-Detroit, second; Hawk, Kisselkar, third.

Ten-mile—Borusth, Warren-Detroit, won, time, 12:48; Hackett, Buick, second.

Twenty-mile free-for-all—Borusth, Warren-Detroit, won, time 24:39; Hackett, Buick, second; Humphrey, Warren-Detroit, third.

Australian pursuit race—Hackett, Warren-Detroit, won; Borusth, Warren-Detroit, second; Humphrey, Warren-Detroit, third; Hawk, Kisselkar, fourth.

SECOND DAY

Ten-mile, 40-horsepower or less—Borusth, Warren-Detroit, won, time 12:25½; Hackett, Buick, second; Hawk, Kisselkar, third; Green, Hudson, fourth.

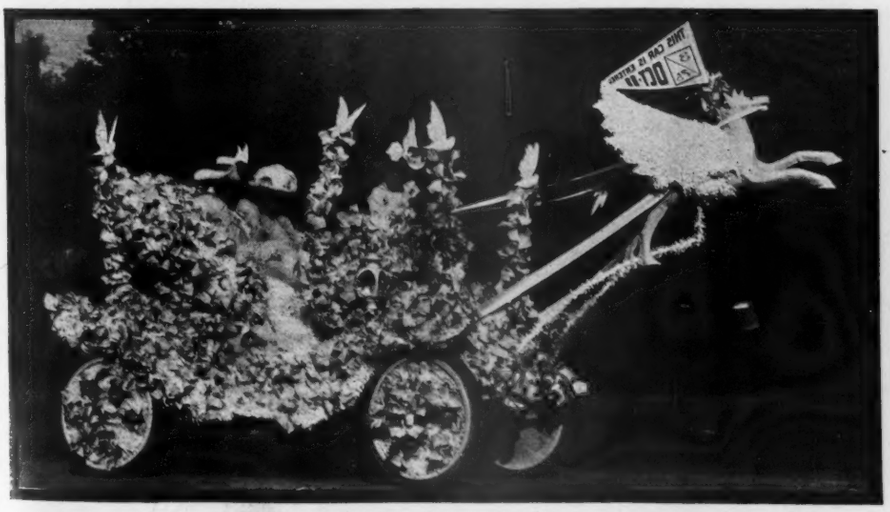
Five-mile handicap—Hackett, won, time 7:36; Hawk, Kisselkar, second; Green, Hudson, third; Borusth, Warren-Detroit, fourth.

Five-mile free-for-all—Borusth, Warren-Detroit, won, time 6:24; Hackett, Buick, second; Hawk, Kisselkar, third; Green, Hudson, fourth.

At Cleveland—Band in Firestone Tire Truck

Big Floral Parade Held in Cleveland

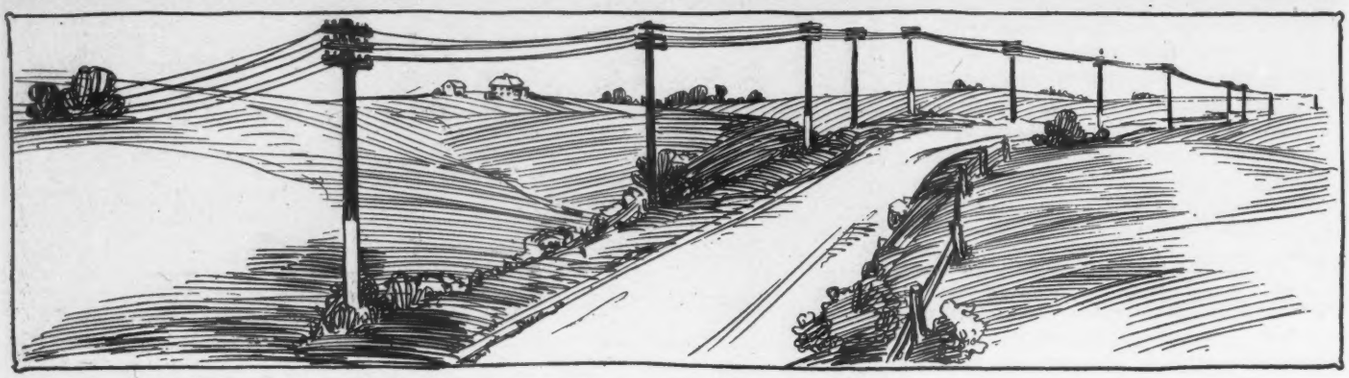
CLEVELAND, O., Oct. 15—Cleveland once more demonstrated its position as a motor car manufacturing and owning center when, in the parade that was held Tuesday afternoon in connection with the Cuyahoga county centennial week celebrations, over 1,500 cars of all sizes, hues and descriptions formed a line that was nearly 5 miles in length. The machines formed in Wade park and paraded a distance of 18 miles through the streets that were densely packed with applauding throngs. The end of the parade was at the new county bridge which spans Rocky river near the western county line. The parade was divided into eight sections, each section headed by a truck containing a band. The mayor and other city officials viewed the brilliant turnout from a stand erected on Euclid avenue. A Rambler car depicted a colonial garden with four collonnades, one on each corner. At the top of each pillar was a little girl in white. The Olds-Oakland Co. had a great canoe manned by Indians. A Brush runabout was resplendent as a mammoth butterfly. The Brown Motor Co. showed a number of Indians in a harvest field. The Auto Top Co. had a machine showing a Thanksgiving turkey. The Michelin twins, two great inflated bodies which writhed and squirmed on the top of a truck, attracted unlimited attention. There were seven classes to the parade. The band rode in the Firestone Tire and Rubber Co. truck.



At Cleveland—Rauch & Lang Electric in Parade

POLICE PROTECT MOTORISTS

Syracuse, N. Y., Oct. 15—The Automobile Club, of Syracuse, has demonstrated repeatedly that it was in sympathy with the police here in their efforts for safe and sane driving, and has lent its influence and efforts to that end. Of late there have been indications that this spirit is appreciated, and the police reciprocate by not tolerating any abuse of the rights of motorists. G. W. Ackerman was driving his car upon a city street the other day when a missile was thrown at him by the driver of a grocery cart. Mr. Ackerman mentioned the circumstances to an officer of the Syracuse club. He passed it on to Chief Cadin, who immediately sought and effected the man's arrest and he was fined forthwith. Shortly afterward a truckman wantonly interfered with the car of Dr. W. D. Alsever, on the Clinton street bridge, nearly smashing the machine. The matter was brought to Chief Cadin's attention and the offender was punished. At the same time Chief Cadin issued instructions to patrolmen to see especially to it that the rights of motorists are respected.



IOWANS MARK HAWKEYE HIGHWAY BY PAINTING WHITE LOWER HALF OF EVERY OTHER TELEPHONE POLE

Hawkeye Highway Iowa's Latest

WATERLOO, Ia., Oct. 19—A good roads mass meeting in the interest of the proposed Hawkeye highway has been called to meet at Waterloo on October 20. The Hawkeye highway simply is another river-to-river road throughout Iowa, extending from Sioux City to Dubuque, through the northern tier of counties in the state. W. F. Parrott, editor of the Waterloo Reporter, is booster-in-chief of the proposition and is largely responsible for the project, although the movement now has taken concrete shape and its success seems assured. At the meeting such speakers as Senator Cummins, Governor Carroll and Captain J. F. Merry are on the program. Delegates will be present from all of the cities and counties along the route of the Hawkeye highway. A few days prior to the meeting Governor Carroll and party will make a motor trip over the proposed route from Sioux City to Dubuque to stir up enthusiasm, just as was done in the case of the original river-to-river road. When the road is completed there will be a good highway of 346 miles, connecting the big cities of northern Iowa on the Missouri and Mississippi rivers. When Editor Parrott decided that Iowa needed another river-to-river highway, he enlisted the support of the newspapers of Sioux City and Dubuque in a publicity campaign, and soon commercial clubs and other organizations including the motoring clubs of northern Iowa were interested in the project.

The Sioux City Automobile Club, headed by Dr. F. A. Seeman, president, led the way, and Dr. Seeman, with C. M. White, of the Sioux City Tribune, were the guests of R. A. Bennett, a Sioux City dealer, in a boosting trip in Mr. Bennett's car across the state. They stopped at all towns along the route between Sioux City and Dubuque. The trip stirred up much enthusiasm and delegations from every town were named to attend the convention.

The Sioux City Tribune has printed a proposed map of the highway and it has been suggested as the one to be followed. It leads out of Sioux City by what is known as the northern route, through Hinton, Merrill and Lemars, thence east through Cherokee, Storm Lake, Fonda, Fort Dodge, Webster City, Iowa Falls, Parkersburg, Cedar Falls, Waterloo, Independence, Manchester and Dubuque. A large number of other towns are on the route, which practically follows the Illinois Central across the state.

The Hawkeye highway already is in first class condition. Between Waterloo and Dubuque the roads are especially good and at places there are even stretches of macadam. The principal need is for the renewal and maintenance of culverts. The worst stretches are between Fonda and Fort Dodge and between Webster City and Iowa Falls. Some of these places are low and will require grading to give the proper drainage. Dragging the whole length of the highway by farmers living along the road is the principal thing needed.

The slogan of the promoters is, "Drag and drain. No extra taxation." However, many counties are showing a disposition to put money into the highway. For instance, the little town of Jessup alone raised $600 to level and put into shape the roads leading into that city in order that it might surely be included in the route. In Black Hawk and Butler counties the supervisors have voted to erect several concrete bridges. Every community that is afraid of being passed up is working overtime making improvements to secure the passage of the highway through it.

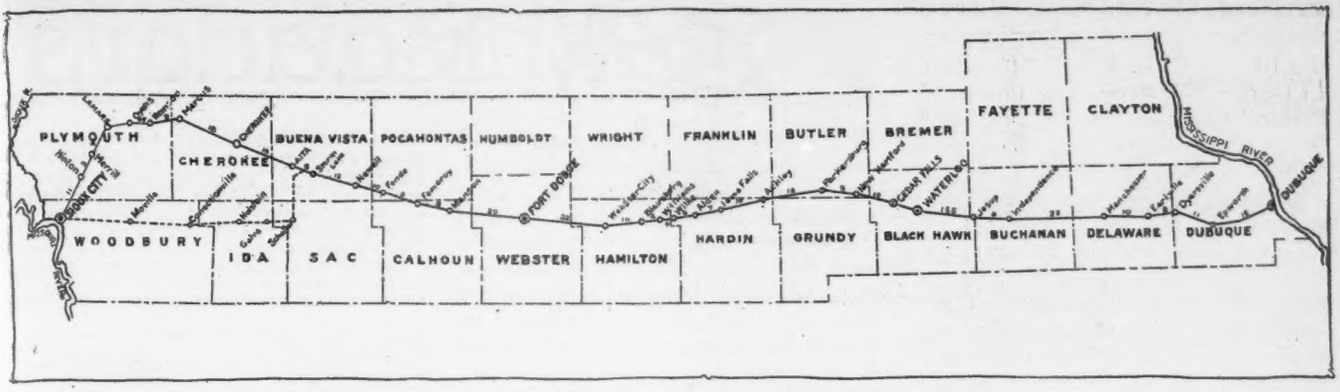
It is intended to mark the route in such a manner that any person starting will know the way without making inquiry. This will be done by painting white the lower 6 feet of every other telephone pole, so that there will be a great white way clear across the state.

FARMERS NOW FRIENDLY

Columbus, O., Oct. 17—The influence of the famous Anti-Automobile Club of Hewitt will be more than offset when the sentiment of farmers in lower Jackson and Gallia counties, Ohio, in regard to the general use of the public highways by the motorists and the benefits to the farms along the highways, finds expression in resolutions adopted at a grange meeting. A few years ago much of the land in southern Jackson county was practically sterile. This was particularly true of the lowland, which had become soured and was capable of yielding but scanty crops. Late years have seen a wonderful change in that portion of the lowland lying along the turnpikes. It has become as productive as any other, and the reason for this sudden and wonderful transformation is explained by scientific agriculturists. The turnpikes are built, for the greater part, of limestone. Lime is the best corrective for soured land. The motor cars, whirring along the pikes, have raised clouds of limestone dust, which the winds carried to the adjacent lands. The productiveness of much of this land has been increased to a remarkable degree and the owners are therefore very friendly to the motor car.

ALLEGHENY COUNTY ROADS

Pittsburg, Pa., Oct. 16—Allegheny county, which is practically Greater Pittsburg, is feeling mighty good over its splendid showing of good roads, according to the last report made by County Road Engineer S. D. Foster. The county has 425 miles of improved highways, the estimated cost of which is about $15,000,000. Many of these roads are paved with brick, but most of them are pike and improved with macadam, amicite and asphalt. The roads are all well drained and are standing the wear of the thousands of motor cars in a way which proves the thoroughness of the county officials in building them. The county bill for repairs and building new links is about $1,000,000 per year, which is the highest expenditure of this kind made by any county in the country except Cook county, Ill., including Chicago, and Philadelphia county, Pa., including Philadelphia. The county commissioners estimate the cost of brick roads at $22,000 per quarter and the cost of surfacing old roads with brick at $12,000 per month. These roads will last 25 years. The county has 125 men con-



ROUTE OF THE PROPOSED HAWKEYE HIGHWAY FROM SIOUX CITY TO DUBUQUE

stantly employed taking care of these roads, keeping ditches clean, mowing the sides, etc. Every effort is made to avoid accidents and in addition to warnings on most bad places all over the county the approaches to the bridges are painted white, so as to be plainly visible at night.

OHIO MAKES BIG CLAIM

Columbus, O., Oct. 17—State Registrar Fred H. Caley, of Ohio, has issued a statement in which he claims that Ohio has more motor cars in operation than any other state in the union, with the exception of New York. According to the figures announced by Mr. Caley, Ohio has 32,051, a gain of 9,044 over the previous year, while Pennsylvania has 30,506, a loss of about 3,845; Massachusetts, 28,272, a gain of 4,301 over the previous year; New Jersey, 25,520, a gain of 663 over 1909; Illinois, 21,081, a gain of 1,705 over the previous year; Michigan, 16,812, a gain of 5,090 over the previous year, and Indiana, 9,110, a gain of 2,049 over 1909. For the month ending September 30 the report of the Ohio department is: Owners registering, 933; manufacturers and dealers registering, 17; chauffeurs licensed, 200; total receipts, $5,294; receipts of 1910 up to September 30, $173,004.

DEATH OF F. C. WINKLER

South Bend, Ind., Oct. 18—F. C. Winkler, president of the Winkler Bros. Mfg. Co., died at his home in this city, Tuesday, October 11, after an illness of several weeks, due to a complication of diseases. Mr. Winkler was born in this city in 1854 and with the exception of a few years spent in Michigan and Ohio was a lifelong resident of the city. The first establishment of the Winkler Brothers was at Truitt's corners, Cass county, Michigan; this business was later moved to South Bend, where in 1902 the Winkler Brothers Mfg. Co. was incorporated and made a specialty of delivery wagons and motor trucks.

Findlay Now Part of Motor Universe

FINDLAY, O., Oct. 19—Within the past 6 months three motor car companies have been organized in this city of 23,000 people—two of them the reorganization of former manufacturing plants, and a third one by Cleveland capital. The capital invested closely approximates three-quarters of a million dollars, and most of the stock was taken here. The first company to enter the field was the Findlay Carriage Co., which increased its capital stock for that purpose from $60,000 to $300,000. A. H. Moyer is manager of the concern, and S. F. Sawyer has charge of that department. W. D. McCaughey is secretary and treasurer, and J. C. Moyer is sales manager. The first car made is a five-passenger, and it has been given the name of Findlay 40. It has a wheelbase of 124 inches with a 4½ by 36-inch tire. The company is getting its engines at Peru, Ind., but many of the other parts are made in the rehabilitated factory here, large additions having been made to it. The company has laid plans for making ten cars at once, and they will be completed as soon as possible, after which work in real earnest will be begun on an order of 150.

The second company to enter the field was the Findlay Motor Co., which is an organization of Cleveland capitalists, having purchased the old Findlay Axe and Tool Co.'s plant. The company has been incorporated with a capital stock of $300,000, and has completely renovated the plant purchased. L. E. Ewing, formerly of Geneva, O., is president of the new concern. He manufactured the Ewing taxicab at Geneva. L. B. Walters, of Cleveland, formerly with the Union National Bank, in that city, is treasurer, and M. J. Rudolph, of Cleveland, secretary. A large force of machinists has been at work for several months making all the tools necessary, expensive machinery has been installed, and everything is now in readiness to begin the manufacture of motor wagons, which will be the sole product of the concern. The company will build but one size truck, carrying 1 ton of freight and already has 250 sold. The entire car will be made within the plant, the first one having appeared on the streets here. The company is using an engine of Mr. Ewing's own invention. The present capacity of the plant is four every 8 hours, but plans have already been accepted for building additions that will increase its capacity to fifteen every day. The buildings will be erected in the spring.

The Adams Brothers Co. is the third local concern to begin the manufacture of cars. The company is one of the oldest founders and bridge builders in the city. The company has increased its capital stock from $60,000 to $300,000, and has placed Joseph Borovitz in charge of the new department. He comes from Paris. The new company will build a five-passenger car, and a 1½-ton truck, all in its plant. Plans have been laid for six cars now, two of each model, and they will be completed by December 15. James T. Adams is manager of the concern.

Early in the year the Findlay Automobile Co., with a capital stock of $10,000, was incorporated by the secretary of state. While the incorporators were seen, nothing could be learned as to their intentions.

Hancock county, in this state, with a population of 43,000, has nearly 300 motor cars. Findlay, with a population of 23,000, owns 175 machines, due, it is said, to the many miles of paved streets—23 miles—which the city possesses. Probably more touring cars pass through this city from north to south than any other city in the state, because of the unrivaled roads in the county, as well as adjoining ones. Starting at Toledo and going south to Cincinnati, it is the gateway for all tours. The county has 400 miles of improved roads, and the counties to the north and south are equally well provided. With no hills to surmount, the trip through here is an ideal one. Aside from its good roads, the scenery also is inviting, being in the center of the rich oil and gas region of northwestern Ohio, that has transformed $25-an-acre land of 20 years ago to from $100 to $150 of this day. Millions of barrels of crude oil are stored here in great steel tanks, the average amount being in the neighborhood of 30,000,000, most of it being pumped from the Indiana and Illinois fields.

Timing Motor Car Valves

MIDDLEVILLE, N. Y.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, tell me how to time a one, two, three, four, six, and eight-cylinder engine.—Dan Farrell.

Assuming that you refer to the timing of the valves of a motor, the valves must open and close precisely at the proper moment, otherwise uneven working and waste power are inevitable. The points of opening and closing of valves are designated in two ways: either in terms of degree around the flywheel, or as distance moved by the piston in the cylinder. As it is much easier, after the motor has been assembled, to determine the position of the piston from marks on the flywheel, this method has been universally adopted. In the factory, as soon as an engine is finished, two marks, diametrically opposite, are located on the rim of the flywheel, such that when one is directly over the center of the mainshaft the piston will be at the end of one of its strokes, or in other words, when either of these marks is on top the piston will be on one of its dead centers.

Refering to Faurote's valve-timing diagram, Figs. 1 to 6, showing the timing of valves for a one-cylinder engine, it will be noted that when the mark H passes a vertical line drawn through the center of the shaft, the piston has just reached the outer end of its stroke, and when the mark C comes into this position then the opposite condition is true. These points are respectively known as the head and crank-end dead centers. Experiments have shown that the exhaust valve should open about 35 or 40 degrees before the crank arrives at the crank-end dead center; therefore, Fig. 3 shows, approximately, the relative positions of the crank and piston when this opening should occur. In order to mark this position a line is drawn across the face of the flywheel at the point EO. Next, as the closing should take place from 5 to 10 degrees late, that is, after passing the head-end dead center, the point EC, Fig. 4, is located, as represented in the sketch. The inlet, of course, opens immediately after the exhaust closes, so that the point IO is next marked off a short distance back of EO. Lastly, the time of closing the inlet is determined; this varies from 20 to 50 degrees after the crank has passed the crank-end dead center, and the point IC is settled upon.

Thus, every motor on leaving the factory has all points of opening and closing of its valves correctly marked upon the face of the flywheel, so that when the engine is dis-assembled for repairs there should be no trouble in checking up the timing to see if the camshaft gear is properly meshed; or, if it is suspected that the valve mechanisms are worn to such an extent that the efficiency of the motor is reduced, one has but to check the opening and closing of the valves with the marks. As each design of motor requires a slightly different valve timing, it is impossible to give definite information that will cover all motors; but as most manufacturers furnish instruction books giving detailed timing of their product one should have no trouble on this account. As the marks are scratched upon the face of the flywheel in the factory, these marks, as in Fig. 10, are generally lettered in the following manner to facilitate retiming or inspection; EO exhaust opens, EC ex-

The Readers'

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

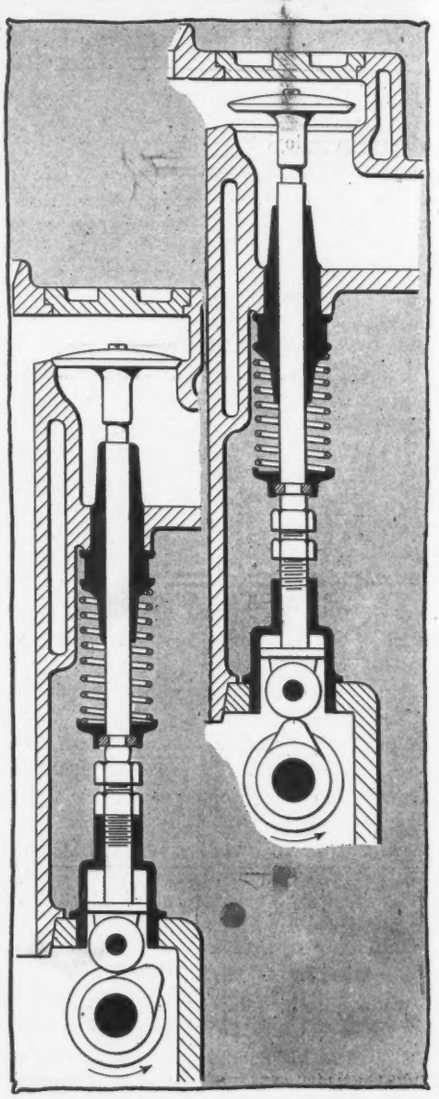
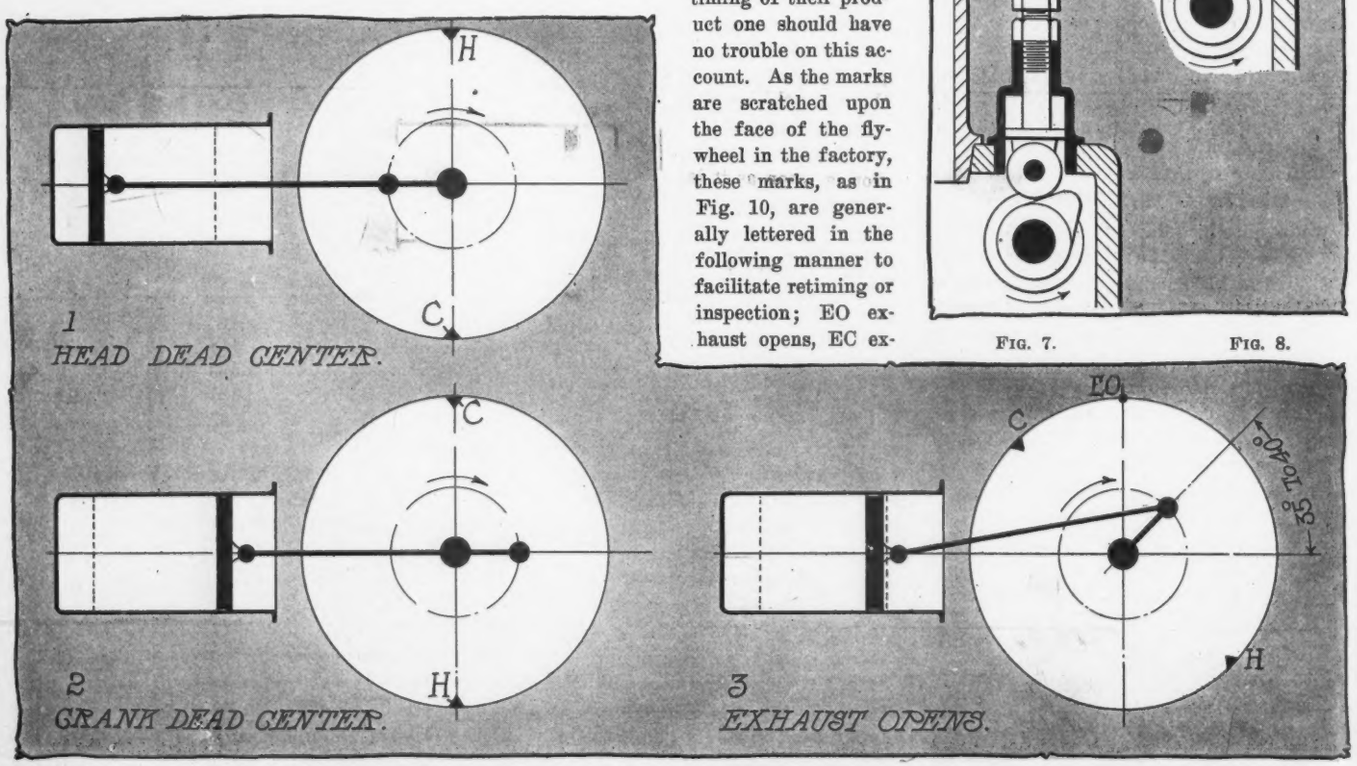


FIG. 7. FIG. 8.



FIGS. 1, 2 AND 3—SHOWING RELATIVE POSITIONS OF PISTON AND MARKS ON FLYWHEEL FOR DEAD CENTERS AND EXHAUST VALVE OPENING

Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

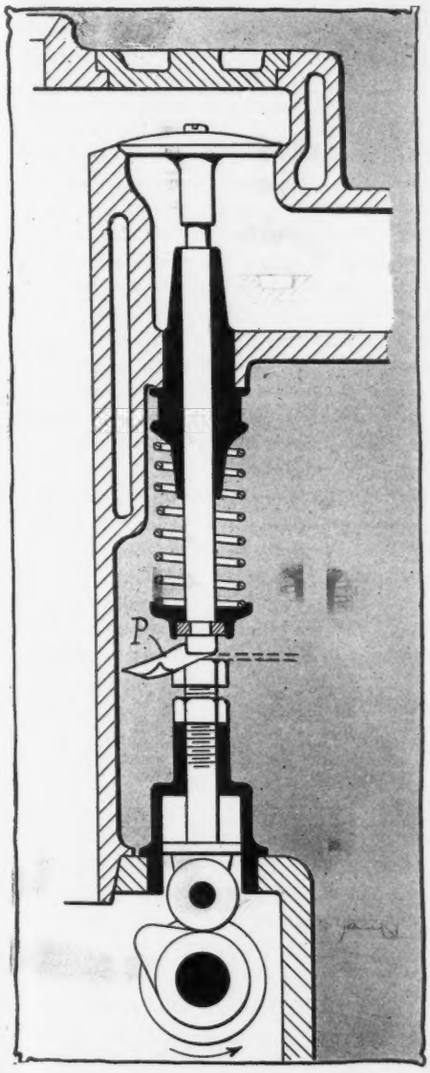


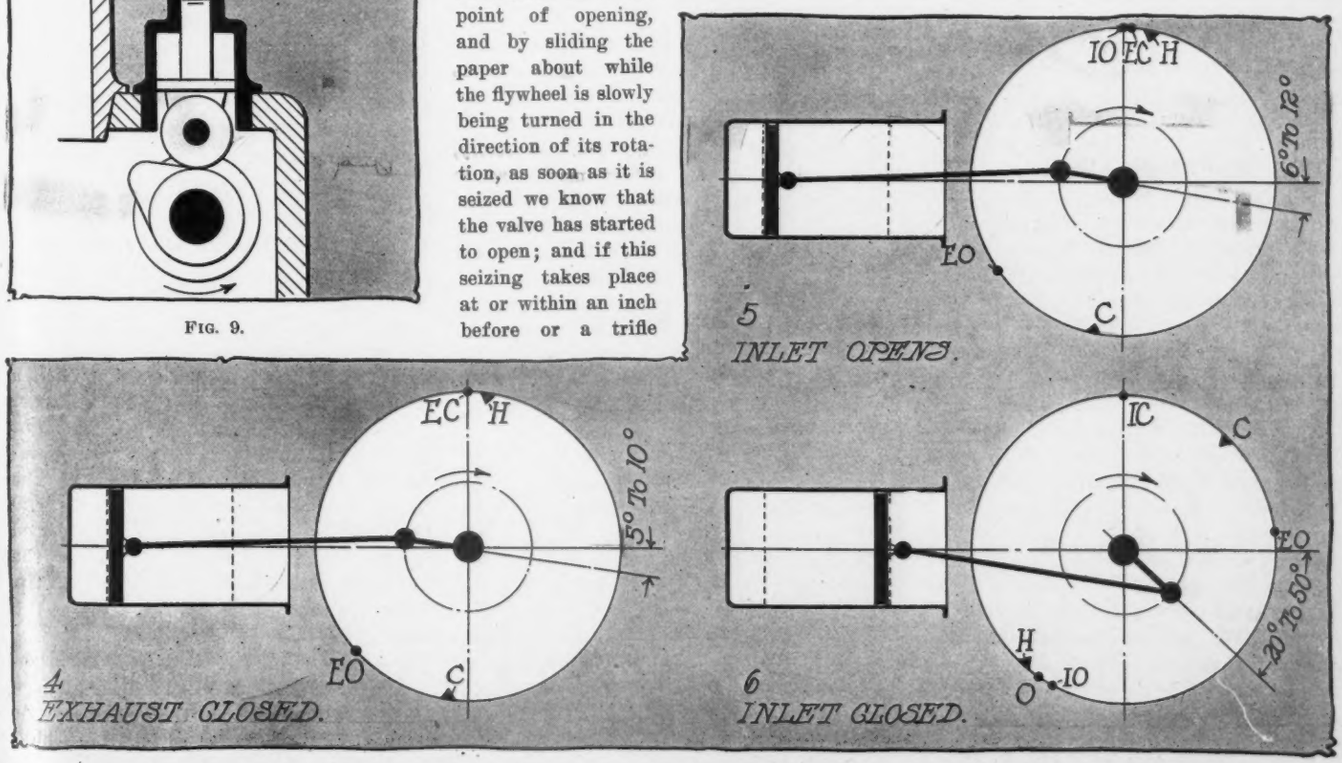
FIG. 9.

haust closes, IO intake opens, IC intake closes, and in multiple cylinder engines figures denoting the cylinder numbers are also present. When the valves have been properly timed, the timing gears are also marked as shown at M in Fig. 11, so that there should be no difficulty in replacing the camshaft correctly.

In Figs. 7, 8 and 9, the successive positions of a valve-lifting cam are illustrated; Fig. 7 shows the cam just about to raise the plunger which operates the valve; Fig. 8 shows the valve at its highest point, or maximum lift, and Fig. 9, the position of the cam and plunger after the valve closes. You will notice that a small amount of clearance is left as indicated by the dotted line, in order to insure a proper seating of the valve when the cam has left the roller. Now let us assume that you have a motor, the timing of which is suspected of being out of order, it is a single-cylinder horizontal type such as shown in the diagram Fig. 1, it does not give the power it did originally notwithstanding the fact that ignition and carburation are good and the compression, though not what it should be, is not affected by leaky valves or ill-fitting piston or rings. To inspect the timing, first turn the flywheel over with the starting crank until the point EO, Fig. 3, is directly over the center of the crankshaft, having first slipped a very thin slip of paper between the ends of the valve stem and push rod as shown at P, Fig. 9. The exhaust valve should now be on the point of opening, and by sliding the paper about while the flywheel is slowly being turned in the direction of its rotation, as soon as it is seized we know that the valve has started to open; and if this seizing takes place at or within an inch before or a trifle behind the mark EO, the timing is quite correct. Wear in the teeth of the timing gears, the cams, the plunger-rollers and pins, and too much space between the end of the plunger or push rod and the end of the valve stem might in the aggregate cause the valve to close a couple of inches late according to the marks on the flywheel. The remedy for excessive wear in these parts is the fitting of new timing gears, new cams, rollers and pins, and the adjustment of the plungers if adjustable, or peening out of the valve stems if not adjustable, so as to reduce the space between the ends of the valve stems and push rods. The inlet valve should be inspected in the same manner except that its respective marks be employed.

Adjusting the Push-Rods

In timing the valves of motors having more than one cylinder, this process, of course, must be repeated for each cylinder. As it is occasionally necessary to inspect the valve timing of a motor while installed in the chassis in such a manner that the marks on the flywheel are inaccesible, it is often possible to do so very readily by following the movement of the piston as shown in Fig. 13. The repairman often has an instrument for this purpose such as is shown at A, but the amateur can get along very well with a plain piece of stiff wire or bicycle spoke upon which the top and bottom dead centers may be scratched as at TC and BC respectively. The wire is placed through the priming cock and allowed to rest upon the top of the piston, the motor is then turned over until the piston reaches either the lower or upper



FIGS. 4, 5 AND 6—SHOWING RELATION BETWEEN PISTON, CRANK AND FLYWHEEL-MARKS AS EXHAUST CLOSES AND INLETS OPEN AND CLOSE

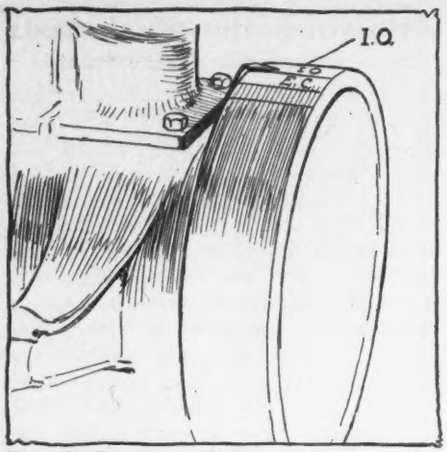


FIG. 10—FLYWHEEL MARKINGS AND INDICATOR

extremety of its stroke, and a thin flat file or a hacksaw blade or the like is used to scratch a mark upon it just opposite the upper edge of the priming cock. When both dead centers have been marked off on the wire, one is ready to proceed with the timing. The instruction book will state that the exhaust valve should close a certain number of degrees, or, say, ⅛ inch late. The degrees relate to the distance traveled by the flywheel, or crankshaft to which it is attached, and the fractions of an inch relate to piston travel. Thus having found the top and bottom dead centers, and with a very thin piece of tissue paper between the ends of the valve-stem and lifters, to learn or check up the correctness of the exhaust valve, turn the motor over until the piston reaches the top dead center of the exhaust stroke, then a little more until it has proceeded about ⅛ inch down on the intake stroke, here the paper between the valve stem and the lifter should become free. A sixteenth of an inch difference in the movement of the piston is a very reasonable limit of accuracy. These methods may be used for all valves on all motors regardless of number of cylinders.

THE COMPRESSED AIR JET

Chicago—Editor Motor Age—I have used a great many different carbureters, all of them being of the float type, and I desire to know if a force-feed carbureter would be an improvement. Is there such a carbureter made, and if so by whom? What benefits would be obtained, and in what particular manner would it surpass the float? In other words, what could be accomplished by a force feed system that would aid carburation more than a float system? All information regarding the force feed carbureter, what it will do, its vital points, etc., will be greatly appreciated.—Subscriber.

Carburation by the compressed air jet method can be obtained more perfectly than by any other, owing to the atomizing effect of an air stream at high velocity. A compressed air jet is, however, very complicated and not suited for small motors, so it is needless to add that compressed air carbureters have long since fallen into disuse. The direct fluid injection of fuel into the air induction pipe was first employed by Spiel, whose apparatus consisted of a spirit pump with mechanically-operated valves. In engines fitted with this system difficulty was found in maintaining the exact proportion of fuel and air required for a uniform degree of efficiency, in the packing of the pump plungers so as to prevent leakage of the fuel, and in adjusting the proportion of fuel and air to obtain the best result. Frequent readjustment to compensate for the varying level in the supply tank was also necessary to compensate for the minute variations in the operating mechanisms; so much so, that it was the exception rather than the rule for two engines to be capable of being adjusted to run through a brake test with uniform results. With a view to overcoming these drawbacks and to adapt engines working on the throttle with a pump feed carbureter, a device consisting of a combined piston-and-pump plunger arranged to force a jet of liquid into the carbureting chamber exactly in proportion to the air supplied to the motor, was devised. Many and various mechanically-operated measuring devices have been projected and applied, and many designs of pumps employed, but as all these devices depend upon such perfect mechanism and careful adjustment, that the requisite uniformity of action is practically unobtainable when applied to the high speed multi-cylinder engine. This subject is quite thoroughly covered in E. Butler's book on "Carbureters, Vaporizers and Distributing Valves," used in internal combustion engines.

FITTING NEW VALVE

Mitchell, S. Dak.—Editor Motor Age—Will Motor Age kindly tell me how to best fit new valve stems to their cages where they are a trifle large?—D. B. Miller.

If the holes or guides in the cages are too large for the valve stems, they should be rebushed. If the stems are too large have the guide holes in the cages reamed out. If you had given us the name of the make and model of the motor to which you refer, perhaps a more definite reply could be given with illustrations.

DANGER OF TIRE BURSTING

Niles, Mich.—Editor Motor Age—Will Motor Age kindly answer the following questions through the Readers' Clearing House columns:

1—Is the bursting of a front tire, when running 20 to 30 miles an hour, likely to prove disastrous providing the driver has his steering wheel well in hand?

2—Is there much difference in the effect on a light car and on one weighing 3,000 pounds when such an accident occurs?

3—Is the bursting of a rear tire particularly dangerous, and does the weight of the car make any special difference in that matter also?

4—Is it a fact that the greater the speed the more danger of serious accident if the front tire bursts? Would it prove more serious at 30 miles an hour than at 15 or 20?—W. F. Harrah.

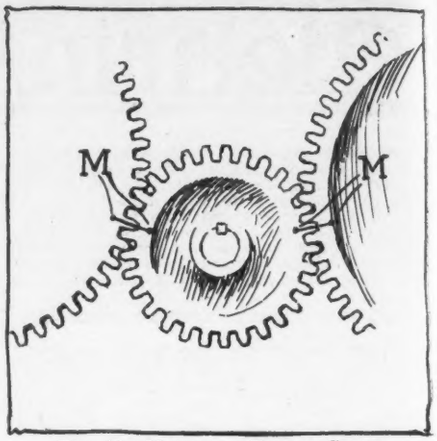


FIG. 11—MARKS ON TIMING GEARS

1—No; unless the tire should come off, get tangled up in the steering gear and render it uncontrollable. In tests front tires can be exploded at speeds of 60 miles per hour on straightways without danger if the driver is capable.

2—Not much, except that the momentum of the heavier car would be more difficult to check in case the steering-gear were damaged.

3—Not as dangerous as a front one except on curves and at a high rate of speed, in which case, if the road were hard and smooth, skidding would be promoted and if the road was soft and rough the wheel rim might dig into it and suddenly check the necessary skidding moment and cause the car to turn over. As for the difference in weight, all depends upon the distribution of the weight; if the chassis is heavy and the body comparatively light, there would be less liability of turning over, whereas if the body were heavy as compared with the weight of the chassis, the car would tip over more readily.

4—Yes, the greater the speed the less readily could a car be brought to a safe stop in case control of the steering-gear were lost.

WHITE GENERATOR DETAILS

Montezuma, Ia.—Editor Motor Age—I would like information on the relative expense of operating steam and gasoline cars of approximately the same price. How many miles per gallon of gasoline will a steam car travel? How many miles per gallon of water will a steamer average? What is the life of a White generator? Do the tubes burn out adjacent to the flame? To what extent can you depend upon the automatic regulating devices used in the White system? Which is the heaviest, the power plant such as the White, or the gasoline power plant of the same power?—W. E. McKee.

It is almost impossible to give comparative figures such as you require, because of the difference in the efficiency of carbureters. There are carbureters which have not given more than 7 miles to the

gallon on big cars, whereas other carbureters on the same car have given 17. The fuel consumption is largely a matter of the carbureter, driver, and the condition of the car. The fuel consumption in a city where the car has to stop and start frequently is generally double that in the country where few stops are made. It is probable that the model K White will average 6 to 8 miles per gallon of gasoline. The water consumption is largely a matter of the driver's operation. These cars regularly travel 100 to 150 miles between water replenishments. The life of the generator is unlimited if the temperature is not allowed to get too high. This steam plant is supposed to operate at 450 degrees centigrade, and if this temperature is maintained the period of usefulness is practically unlimited. The tubes adjacent to the flame do not burn out. The automatic regulating can be entirely depended upon excepting should some part of it go wrong due to dirt or other substances getting in and preventing the proper flow of gasoline past the fuel valves. This rarely occurs and is the same in spirit as the flow of gasoline through a carbureter being obstructed by dirt in the needle valve. The power plant of the White steamer cannot very well be compared with that of a gasoline car because in a gasoline car the gearset is much heavier than in a steam car and there is the clutch into the bargain. There is so much variation in the weight of gasoline motors giving practically the same power that comparisons would be impossible.

USING ETHER WITH GASOLINE

Hennessey, Okla.—Editor Motor Age—Will Motor Age kindly answer through the Readers' Clearing House the following questions:

1—What kind of ether and how should it be used to make gasoline do more work?

2—Will it help an engine to mix a little coal oil in with the gasoline to be burned in the engine. We understand that the coal oil lubricates the walls of the cylinder and keeps it from forming so much carbon, especially on air-cooled engines.—A Subscriber.

1—When the term ether is used without qualification, diethyl ether, $(C_2H_5)_2O$, is universally understood to be meant, just as ethyl alcohol is understood when alcohol is mentioned without qualification. It is claimed to increase the energy of a motor when mixed with the gasoline in proportions of 3 ounces of ether to 5 gallons of gasoline.

2—Coal oil is a good carbon remover and a fairly good lubricant when applied cold, but if mixed with the fuel and burned in the cylinder it will have just the opposite effect, for coal oil when burned deposits more carbon than gasoline. Coal oil, however, contains more heat units than gasoline and if mixed with the gasoline of an air-cooled motor should increase the efficiency of fuel consumption. Being less volatile it would make starting of the motor difficult when cold, but once warmed up it would burn just as readily and with perhaps a little more power than the pure gasoline, but as before mentioned, the cylinders would be apt to carbonize more quickly than otherwise.

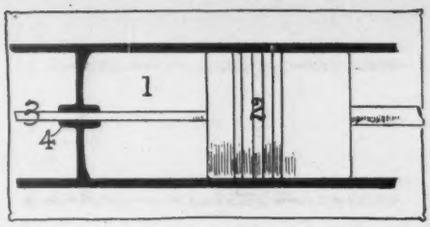


FIG. 12—PUSH-ROD THROUGH CYLINDER-HEAD

WANTED—MOTOR INFORMATION

Dixie, Wash.—Editor Motor Age—Will Motor Age through the Readers' Clearing House answer the following questions: I have an idea on a gasoline engine which I think would be practical except for one objection, as shown in the illustration. The illustration, Fig. 12, presents a cylinder-No. 1 the explosion chamber, No. 2 the piston, and No. 3 the push rod. I want to run the push rod from the piston head through the cylinder head. 1—Can the rod No. 3 be packed at point 4 so it would be practical and not burn out? 2—Could small contracting rings be put into contact against the rod and work opposite the expansion rings on the piston? The packing at that point can be easily oiled at all times.—Paul Thonney, Jr.

Motor Age has no gas-motor designs on record which are similar to yours, and hesitates to venture a criticism on a construction which, though successfully applied to steam engines, might be impractical when subject to the naked flame of the internal combustion motor. However, if the advantages to be gained by this construction are sufficiently great, the writer is of the opinion that the packing of the rod where it passes through the cylinder head could be successfully worked out. There are asbestos packings on the market which might be employed, but thoroughly lubricated metallic split packing rings would perhaps give more efficient service.

2—Yes, if the rings could be advantageously slipped onto the rod; otherwise another type of ring must be devised.

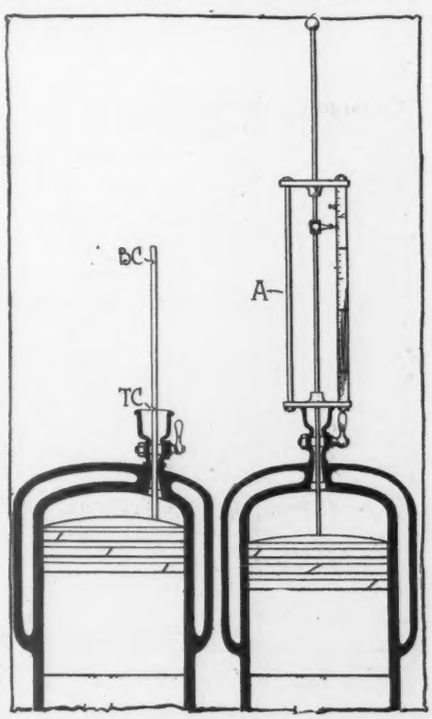


FIG. 13—PISTON POSITION INDICATORS

MAGNETO ON V MOTOR

Reno, Nevada—Editor Motor Age—Relative to applying a magneto—Bosch—to a two-cylinder motorcycle having the cylinders placed at 55 degrees from each other, how is it possible to apply and time it to such an agle between cylinders. I refer to armature winding.—Wm. R. Harlan.

The Bosch company manufacture magnetos specially designed for such motors as you speak of. It is, however, customary to mount the cylinders at 45 degrees to each other, and the magnetos are made for this angle, but where cylinders are mounted at 55 degrees to each other it is possible to change the breaker box mechanism so as to give the spark at the required times.

USING MOTOR AS BRAKE

Tallapoosa, Ga.—Editor Motor Age—Will Motor Age through the Readers' Clearing House answer the following questions:

1—Does it hurt an engine to cut off the ignition when the top of a hill is reached, leave it in gear, leave the clutch in, and use the engine as a brake? This cools the engine.

2—In putting a Ford rear axle on a chain-drive, four-cylinder, 16-horsepower Franklin, would it be necessary to change the gear ratio of the axle for the engine to pull the car well?

3—What causes a cone clutch, when the leather surface is not worn out, to take hold too quickly after it has stopped slipping when oil has been put on it?—Irl W. Summerlin.

1—On the contrary, it is a common practice and claimed to be very beneficial; it not only cools but thoroughly scavenges the cylinders, exhaust pipe and muffler.

2—Changes of this nature are generally conceded as impracticable, but a change of the rear-axle gear ratio will hardly be necessary unless the load is in excess of that for which the Ford rear axle is designed.

3—The surface of the leather may be glazed or burnt so that when oil is applied it does not soak in and soften up the leather, but merely lubricates the surface, from which it is readily rubbed off and the clutch again allowed to grab, so to speak. Then, if the clutch bearing is worn and the clutch drags before it is let in, a sort of intermittent jerking would take place.

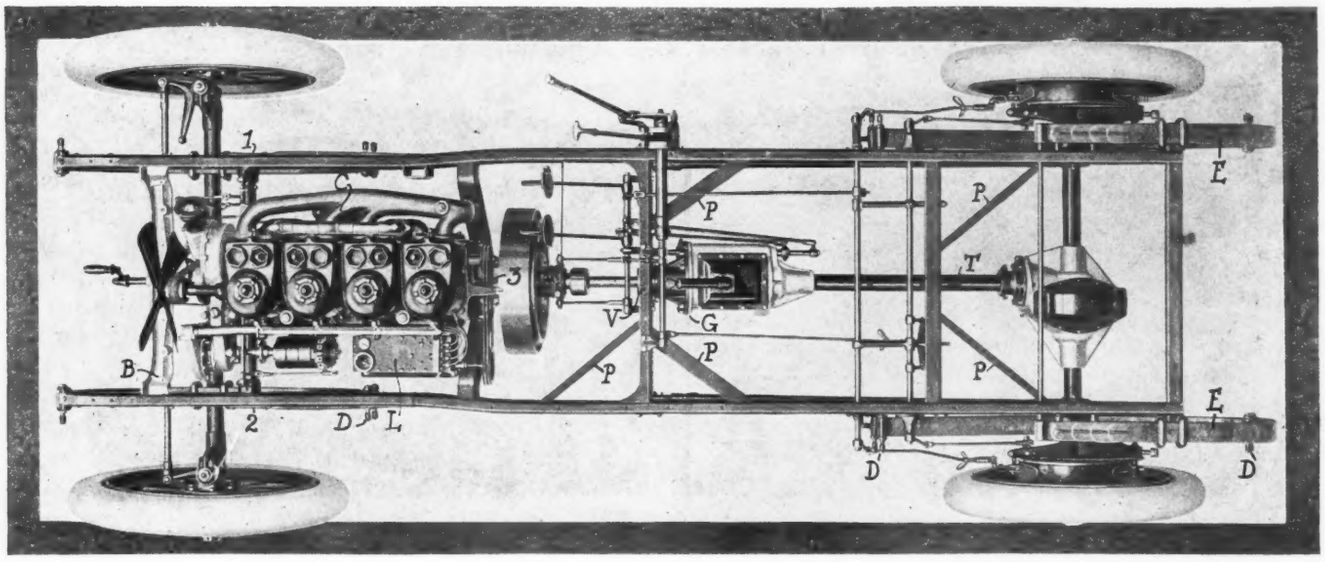


FIG. 1—PLAN VIEW OF RAMBLER CHASSIS SHOWING OILER IN NEW LOCATION, NEW REAR SPRINGS AND CARBURETER ON RIGHT SIDE

Many New Ideas Are Found in the

RAMBLER models for next year are designated models 63, 64 and 65. These three models are alike in nearly every detail, but take different bodies, different motors, different tire sizes and have different wheelbases, their general specifications being:

	Model 63	64	65
Motor	4½ by 4½	5 by 5½	5 by 5½
Wheelbase	112	120	128
Tires	36 by 4	36 by 4½	40 by 4½
Ignition	Splitdorf	Bosch	Bosch
Carbureter	Stromberg	Stromberg	Stromberg
Frame	Straight	Straight	Dropped
Bodies	Touring Roadster Coupe Town car	Touring Toy tonneau Landaulet	Touring car Limousine
Shock Absorbers	2 Hartfords	4 Hartfords	4 Hartfords

From these specifications it will be noted that the Rambler for next season has been improved in not a few respects: The use of 40-inch wheels is an innovation with the firm on its 65 model, so is the dropped frame, so are the seven-eighths rear springs, so is the Stromberg carbureter, so is the Bosch magneto, and so is the fitting of Hartford shock absorbers. The Rambler spare wheel used for a couple of seasons is continued and the offset crankshaft remains on all three models.

Generally speaking the backbone of Rambler design remains unchanged. This is apparent from Fig. 1, showing the four-cylinder motor with separately-cast cylinders having both sets of valves on the right side. The selective gearbox G is still formed as a unit with the rear axle by means of the torsion tube T which is inserted into the gearbox at its forward end and is bolted to the differential at the rear end, thus giving a two-unit chassis design with but one universal joint in the system and that located in front of the gearbox at the point V.

The company has retained its novel three-point motor supports at points 1, 2 and 3; points 1 and 2 being through a transverse steel tube at the forward end and point 3 being on a dropped cross-member at the rear of the crankcase. But the motor has been improved. The mechan-

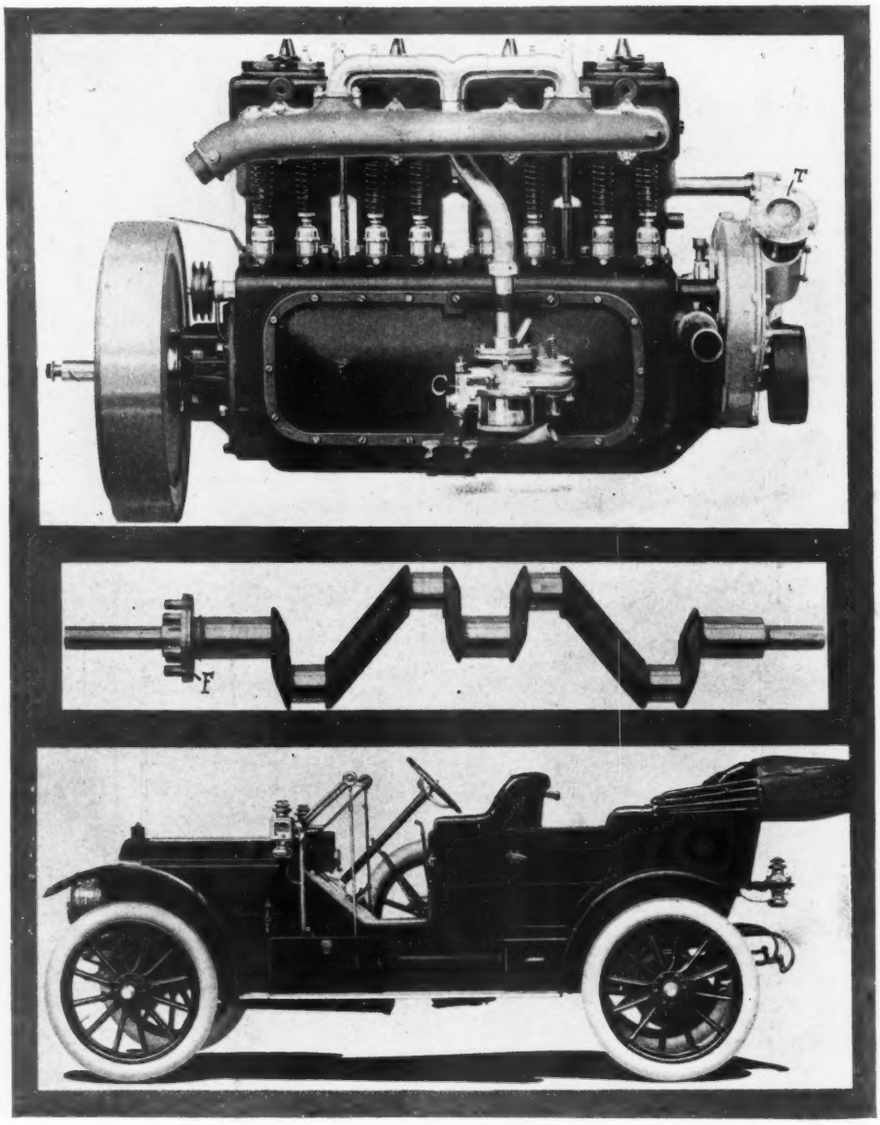


FIG. 2—CARBURETER IS NOW ON THE RIGHT SIDE
FIG. 3—THE CRANKSHAFT HAS AN INTEGRAL FLANGE F
FIG. 4—RAMBLER TOURING CAR MODEL 63

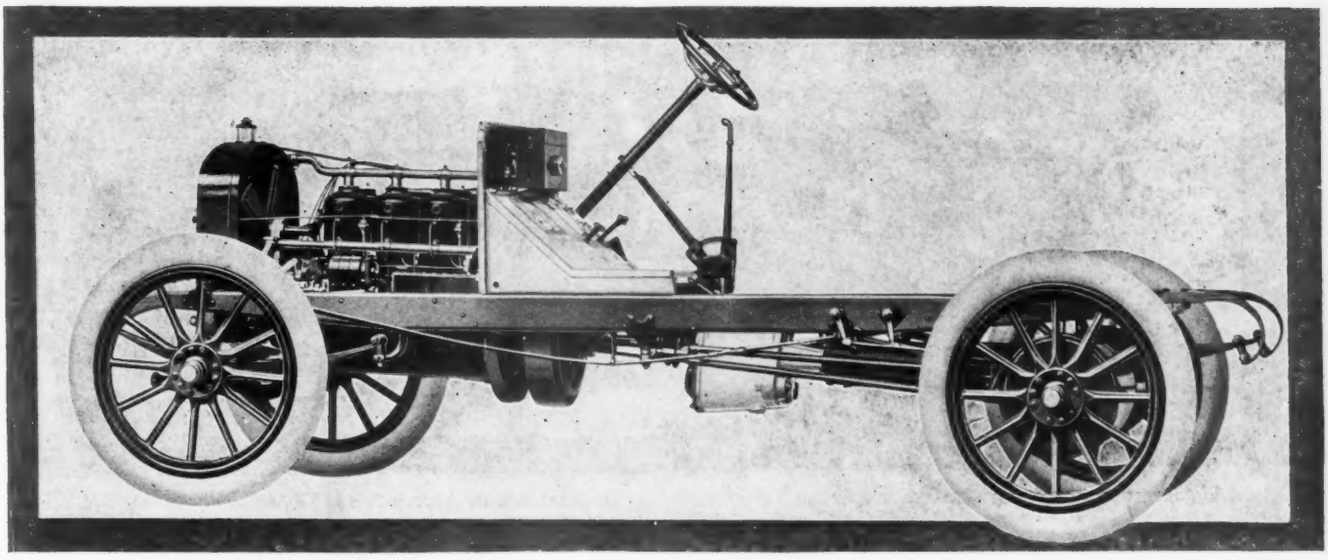


FIG. 5—ELEVATION PHOTOGRAPHIC REPRODUCTION OF 1911 RAMBLER CHASSIS SHOWING NEW RADIUS-TORSION ROD CONSTRUCTION

Three New Ramblers for Next Year

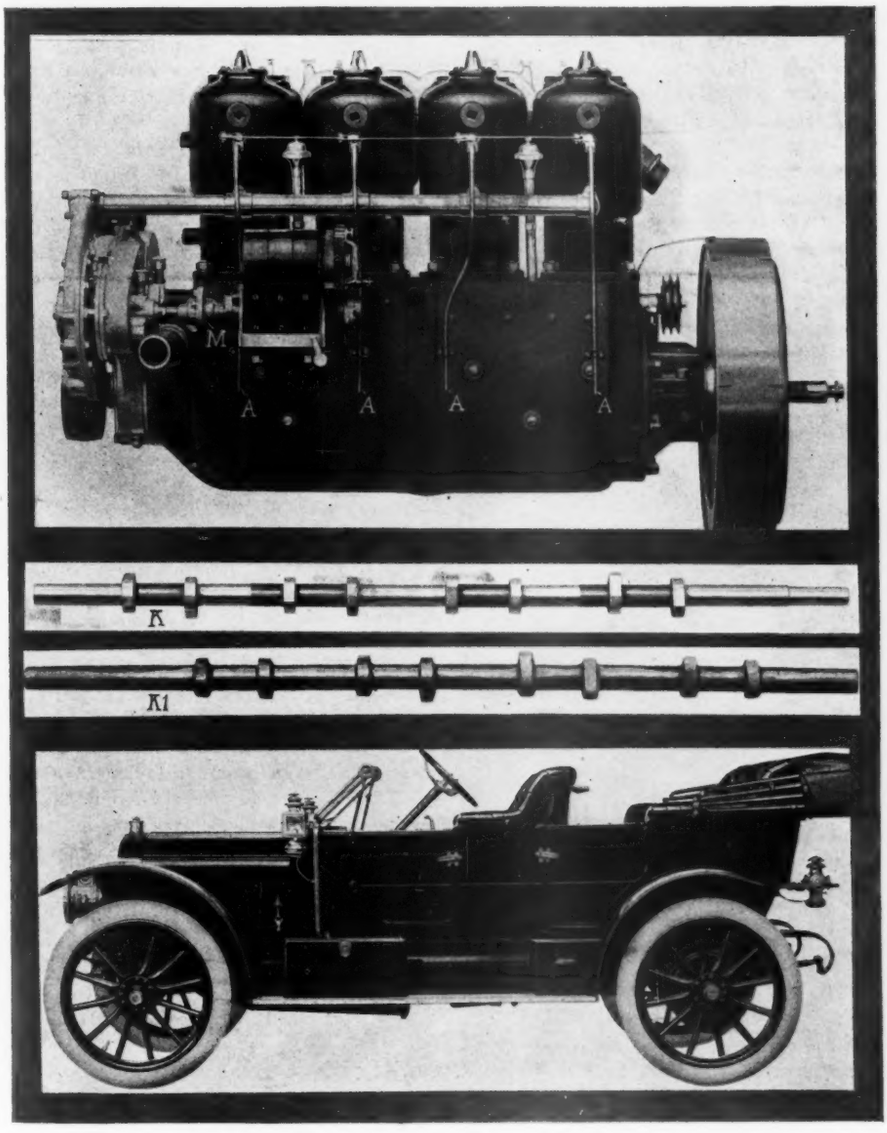


FIG. 6—SHOWING THE MAGNETO COUPLING M AND COMPRESSION RELIEFS
FIG. 7—THE CAMS ARE NOW INTEGRAL ON THE SHAFTS
FIG. 8—RAMBLER MODEL 63 WITH FORE-DOOR BODY

ical lubricator L has been brought forward from its position under the floor board at the left and now rests on the left side of the motor, where it is more accessible; the temperature of the oil is more uniform with varying temperatures and where the oil pipes leading to the cylinders and crankcase are shorter and less liable to break.

Then another quite important change appears in Fig. 1, and that is that the carbureter C—you cannot see it, but it is beneath the exhaust manifold—is on the right side. It used to be on the left side. When it was on the left side the intake manifold was carried over to the right side between the second and third cylinders. As it is for next year the manifold is much shorter and there should be less chance of the mixture condensing on its way from the carbureter to the cylinders.

Figs. 2 and 6 show the motor in detail. In Fig. 2 the carbureter support on the side of the crankcase is shown; and in Fig. 6 the four compression releases A appear, the pipes from the relief cocks being carried down alongside the crankcase so as to direct the released gases into the mud apron under the motor.

But a resume of the motor would be incomplete if the new crankshaft Fig. 3 were not referred to. This crankshaft is a forging made in the Rambler plant and is now provided with an integral flange F to which the flywheel bolts. Heretofore the crankshaft was without this flange and the flywheel was simply keyed to the shaft. But the bearing surface on the models 64 and 65 has been increased 28 square inches. Fig. 7 shows another motor improvement, exhibiting as it does the new drop forged camshaft—also a Rambler forging—with the integral cams. Part K shows the completed camshaft with all the cam faces ground to a finish. Part K1 shows the rough forging before any machining operations were performed on it.

But it is not only in the structural details of the Rambler motor that 1911 im-

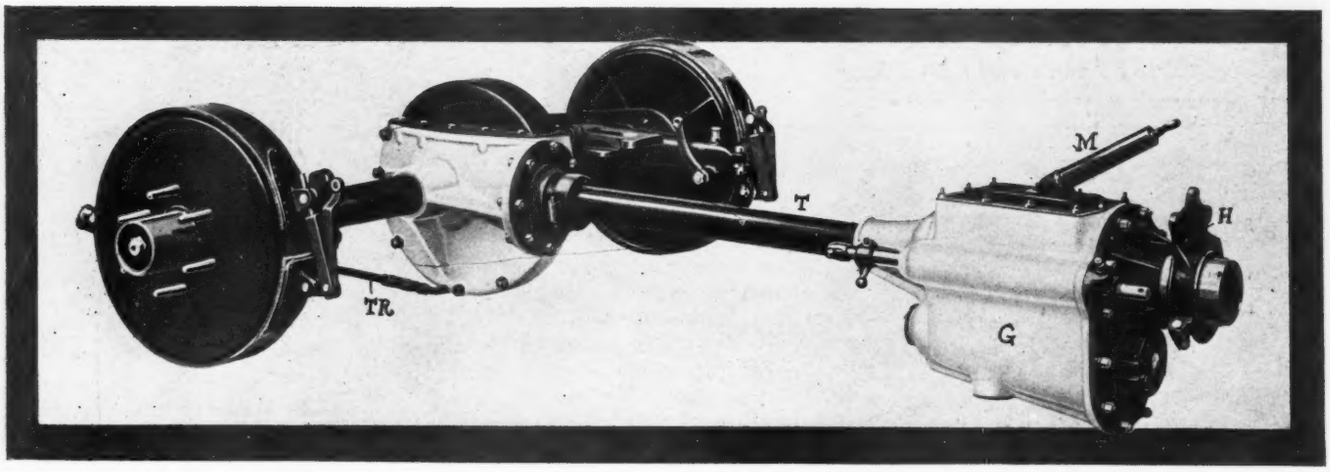


FIG. 9—THE THREE RAMBLER MODELS USE SELECTIVE GEARSETS WHICH ARE IN REALITY A UNIT WITH THE REAR AXLE, BECAUSE OF THE TORSION TUBE T WHICH CONNECTS THE TWO

provements are conspicuous, there are advances in the equipment. The fitting of a Stromberg carbureter for the first time has already been mentioned. In close pursuit comes the use of a Splitdorf dual ignition system on the model 63 and on the models 64 and 65 is a Bosch magneto together with a six-80 storage cell, the current from each being led to one set of plugs. The Bosch magneto appears in Fig. 6 and in Fig. 2 the timer T is marked and is used in the battery circuit. With the battery system is a dash coil. There is a high-tension switch on the dash and due to which one set of plugs can be used for both systems. Another ignition feature appears in Fig. 6 in the form of a new bolted-together coupling M in the magnetoshaft and by means of which the ignition timing can be changed readily.

Apart from these improvements there have been few motor alterations. The one-piece crankcase remains. It is a deep barrel-design with end plates to take the end bearings of the crankshaft. The cylinders are offset from the center of the crankshaft, as this company has done for several seasons, the object being the reduction of the side thrust of the piston against the side of the cylinder on the explosion stroke due to the reduction in the angularity of the connecting rod. On the compression and exhaust strokes the angularity of the rod is increased, but there is little pressure exerted on these strokes.

The Rambler transmission system appears as a unit in Fig. 9, in which illustration the unit design of the gearbox G and rear axle is illustrated clearly. The gearbox support is through the bracket H from a cross-member of the frame, where it is free to rotate laterally when occasioned by one rear wheel passing over an obstacle. The rear axle does not push the car through the torsion tube T, but through radius rods extending from the rear axle housing to the frame side members and seen in Fig. 5. These have been called combined radius and torsion rods because at their rear they are attached to a forged bracket above and below the axle and at the forward end have a ball-and-socket support in brackets bolted to the side members of the frame. The rear ends of these rods spanning the rear axle is intended to absorb the torsional strain at the axle and so relieve the torsion tube of this load.

The rear axle is a semi-floating construction, it being impossible to withdraw the axle driveshafts through the wheel hubs because the differential gears are upset on the shaft ends. The differential is now carried on Timken roller bearings as illustrated in Fig. 11 and in Fig. 10 it shows that these bearings T are used for carrying the front wheels on the steering spindles instead of the cup-and-cone ball types of the present season.

There has been a perceptible improvement in the brakes as well as an increase

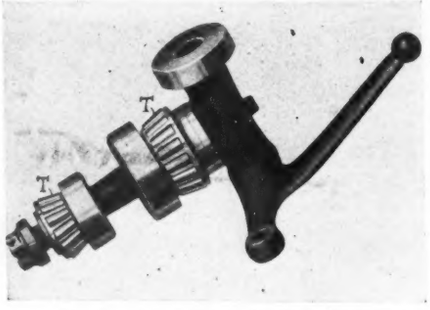


FIG. 10—TIMKEN ROLLER BEARINGS ARE NOW USED FOR THE FRONT WHEELS

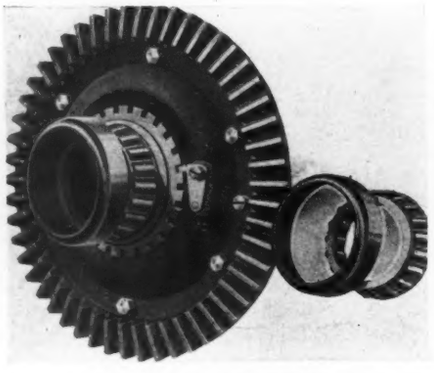


FIG. 11—TIMKEN ROLLER BEARINGS NOW CARRY THE DIFFERENTIAL ON RAMBLER CARS

in their size. Fig. 13 shows them to be of the internal and external type. The braking surface has been increased by 97 square inches of surface. The drum diameter has been raised from 13 to 15 inches and the width from 2 to 2¾ inches. There is further difference in the support of the expanding shoes and the contracting band, both being carried so that the toggles expanding the internal shoes and the levers for contracting the band are at the forward side of the drum instead of on top of the drum. This places the fulcrum point at the rear side, where it is further removed from the ground than if in the 6 o'clock position of the present year. The leverage, for applying the brakes, has been increased and either set will lock the wheels. The control pedal connects with the external set, the side lever with the internal set. Both sets are applied through equalizers.

Perhaps nothing is more radical in the running gear than the seven-eighths elliptic rear springs. At the first glance you might be prompted to call them three-quarter elliptic types, but they are not; they are literally seven-eighths ellipticts. The seven-eighths comes in this way: As seen in Fig. 1 the top part E attaches to the frame at two points, one directly opposite the end crosspiece of the frame through two spring clips which span the leaves and clamp them to a bracket on the frame; and the second attachment ahead of this. If you go forward from the two spring clips you will see where the long leaf ends in an eyehole through which passes a transverse rod extending across the frame and passing through the side members. It is this extension of the spring that is responsible for the new nomenclature the Rambler designer has evolved. This second spring attachment has been introduced to remove twisting strain and to reduce side sway. The front springs are semi-ellipticts mounted on the tubular front axle in all models except 65 with its 40-inch wheels in which one the springs are clamped under the axle in order to keep the center of gravity as low as possible.

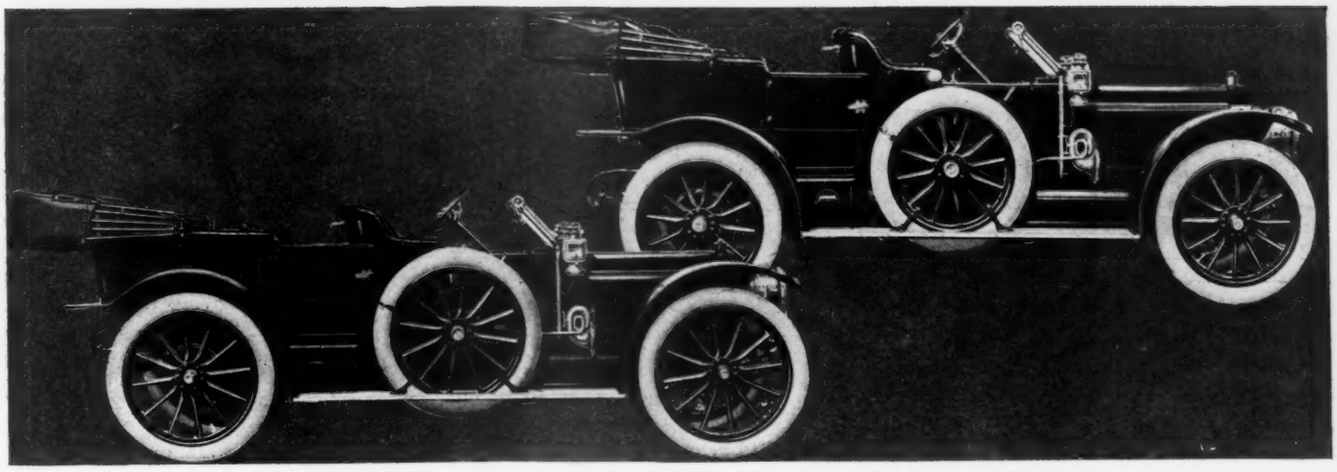


FIG. 12—AT THE LEFT IS SHOWN RAMBLER MODEL 65 WITH FORE-DOOR BODY—AT THE RIGHT IS RAMBLER MODEL 64, ALSO WITH FORE-DOOR BODY WHICH DOORS CAN BE REMOVED FOR SUMMER USE

All springs are made with wider but thinner cleaves, the aim being a more resilient action. In conjunction with the new spring suspension Hartford shock absorbers are fitted as regular equipment on the 64 and 65 and two absorbers are furnished on the 63. Grease cups are now fitted on all spring bolts.

In the running gear the screw-and-nut type of steering gear is continued, the nut being made longer to give increased wearing surface and the steering parts are generally stronger. In the steering knuckle, the knuckle pin in the 64 and 65 is secured to the knuckle part rather than to the axle end in order to prevent wear between the knuckle and the pin. Hardened and ground bearings are placed in the knuckle yoke and the pin is hardened and ground at the points of bearing contact. The wear is divided between these bushings and the ball thrust in the top of the knuckle. In the front axle the reinforcement within the tubing is treble its former thickness. The tubular axle is used on all models.

But the attention of the Rambler designers and engineers has not been all bestowed on the chassis, the body design as well has been benefited. The fore door has been introduced, but the maker has gone one step further than many companies by making it detachable so that in summer it can be removed without giving the appearance of something being lost or missing. To accomplish this interchangeable feature, the front floor and floor supporting brackets have been redesigned, the sloping section of the floor now having a greater angle and the side brackets are flush with the floor level. On the right side is a solid panel instead of a door, the transmission lever inside of it and the brake lever outside.

A low body carriage has been aimed at in the model 65 with 40-inch wheels, by using the underslung front springs and dropped frame so that the body on this model is no higher than on model 64 with 36-inch wheels. A body novelty on model 65 is nickel trimmings as compared with brass finish on the other two models. The spare wheel is a component part of all models and arrangements are provided for carrying it on the right running board as illustrated. A slight alteration, yet one which makes a big difference in the appearance of the car, is the neat aluminum cross piece on which the radiator is supported. This inverted arch on the base of the radiator as used at present has been eliminated and the light aluminum piece substituted. The radiator is a vertical tube and built in the Rambler factory.

There is scarcely any other concern in the country that builds so much of its cars as does the Rambler company, and this spirit of home manufacture grows from year to year. All of the forgings needed in the car from the crankshaft and camshafts to all of the gear blanks are manufactured by the company. The radiator is of home manufacture, so is the frame, and so are the cylinder castings and all of the aluminum and brass castings needed. It is only when enumerating such parts as carbureter, magneto, coil and Timken bearings that the passing from home manufacture in the car parts is noted.

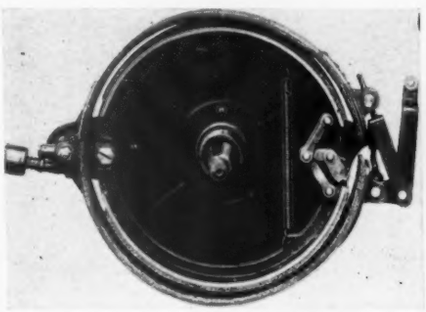


FIG. 13—THE RAMBLER BRAKES HAVE BEEN INCREASED IN DIAMETER AND WIDTH

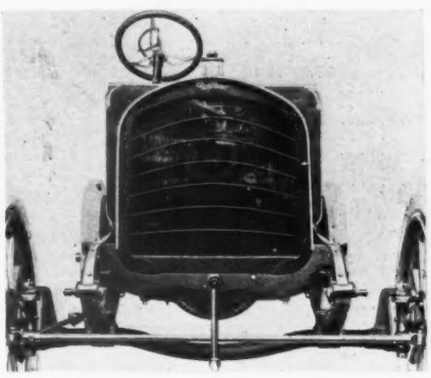


FIG 14—THE RAMBLER RADIATOR IS NOW CARRIED ON A GRACEFUL ALUMINUM PIECE

NEW OVERLAND MODEL

A new low-priced car is now being placed on the market by the Overland company of Indianapolis, Ind., which will be known as the model 47. It will be equipped with a four-cylinder four-cycle water-cooled motor of the L type, a planetary gearset giving two forward speeds and reverse, a semi-floating rear axle, drop forged I-beam front axle, pressed channel steel frame mounted upon semi-elliptic front and elliptic rear springs, and 32-inch wheels with 3½-inch tires. The motor will be suspended at three points from the main frame and the drive therefrom will be through a single universal joint and a shaft inclosed in a torsion tube directly to the clutch and gearset mechanism, which is in unit with the rear axle. Lubrication of the motor is maintained by a force feed mechanical oiler located over the two rear cylinders and driven by means of an eccentric and rod from the crankshaft just in front of the flywheel. There are four feeds to each of the four separately-cast cylinders, one to the rear main bearing of the crankshaft and one to the timing gear case in the front. The crankshaft is supported on five bearings and is offset. Ignition is by means of a Remy dual magneto system.

MOTOR CAR LITERATURE

The American Locomotive Co., New York, has issued an interesting catalog featuring the Alco trucks for 1911. It is an 8¼ by 11 size and shows the field of the Alco truck. Description and complete specifications are included.

Bulletin No. 39, from the Industrial Instrument Co., Foxboro, Mass., calls attention to its dial, tube, and stem type of thermometers.

Manufacturers' Communications

Makes Temperature Tests

CHICAGO—Editor Motor Age—I have just completed a test of the temperature compensation of three Stewart and three uncompensated speedometers of another make, and have the following report to make:

Speedometers of the magnetic type vary considerably in their readings with changes in the temperature, unless this variation is compensated. In speedometers of this type a magnet rotating under a cup-shaped disk of aluminum indices electric currents in the cup, which tend to drag the cup around in the direction of the rotation. The cup is mounted on a pivot, and its motion is opposed by a spring. The induced currents are proportional to the speed of the magnet, and the torque exerted on the cup is proportional to the currents. Therefore, the angle through which the cup rotates, before the spring brings it to equilibrium, is directly proportional to the speed of the magnet. A pointer marks this angle on a scale calibrated in miles per hour.

The electrical resistance of the aluminum cup changes inversely as the temperature. Consequently the induced current will increase when the temperature decreases, and the readings will be high on an instrument calibrated at normal room temperature, while at higher temperature the instrument will read too low. As shown in this, and in other tests, uncompensated instruments give a variation amounting to more than 22 percent of the reading for a temperature change of 100 degree Fahrenheit. In the Stewart speedometer the expansion and contraction of the case is made to compensate the temperature variation. A lever is mounted on a heavy frame in the base of the instrument in such a manner that the contraction of the case, when cooled, moves the lever and lifts the bearing in which the cup-shaped piece of aluminum is mounted, causing the cup to be slightly displaced in the magnetic field. When the temperature rises, the case expands and the cup is lowered by the lever, thus increasing the effective area of the cup in the magnetic field. The movement of the lever is directly proportional to the temperature change. By proper adjustment of the lever the changes in the position of the cup in the magnetic field are made to compensate the temperature changes in the readings of the speedometer.

Three Stewart speedometers with this compensating device were tested at three different temperatures and for comparison three uncompensated magnetic instruments were used. One speedometer of each type was mounted on a wooden rack and placed in a galvanized iron box 18 inches by 8 inches by 9 inches. This was placed in a larger box, 24 by 14 by 11 inches, which could be filled with hot water or with ice and salt to regulate the temperature. Both boxes were covered with glass to permit reading the speedometers. Galvanized iron tubes passed through both boxes on one side to admit flexible shafting which operated the speedometers. The shafting was geared to a variable speed apparatus driven by an electric motor. The variable speed apparatus consisted of a small friction wheel mounted on a shaft along which it could slide and at the same time rotate the shaft. This friction wheel was turned by a larger wheel at right angles to it and the speed could be varied through the desired range by moving the small wheel from the center towards the outside of the large wheel. The small wheel could be clamped to any desired position to maintain a constant speed. Attached to the end of the shaft was an electric contact-breaker, which could be adjusted to make from two to eight contacts per revolution of the shaft. A 110-volt direct current was passed through this contact breaker to a Hartmann & Braun frequency meter, from the reading of which, and from the number of contacts, the rate of rotation of the shaft could be determined. This apparatus was checked by using an ordinary revolution counter and a watch, the two methods agreeing very closely. The speedometers were geared to the shaft by gears designed to give them their proper speeds.

The friction wheel was moved along the shaft until the frequency meter showed the right frequency for the desired speed. The speedometers were then read and the temperature taken. This was repeated at different speeds and at different temperatures. In this manner three sets of speedometers were compared at low temperature, room temperature, and at high temperature. For the low temperature ice and a little salt were packed around the speedometers in both the inner and outer boxes, except in the first set, in which the ice and salt were in the outer box only, the speedometers being air-cooled. For the high temperatures the speedometers were first warmed in an oven to a temperature somewhat above that at which they were to be tested. The outer box was filled with hot water, also a few degrees above the desired temperature, and the speedometers were placed in the inner box and connected to the flexible shafting. The readings were taken when the thermometers in contact with the speedometers showed a nearly steady state. The variation in temperature during a set of readings was not more than 1.5 degrees Fahrenheit, except in one instance, when it reached 5 degrees Fahrenheit.

The tabulated results shows that an uncompensated magnetic speedometer varies uniformly with the temperature. This variation computed on the basis of a change of 1,000 degrees Fahrenheit amounts to more than 22 percent. Such an instrument, if calibrated at 75 degrees Fahrenheit would read about 5.5 percent lower at 1,000 degrees Fahrenheit, which would be about 2¾ miles slow at a speed of 50 miles per hour. At 0 degrees Fahrenheit the

TEST OF SPEEDOMETERS

STEWART A 143492

Miles per hour	Speed at 42.8° F	Speed at 69° F	Speed at 118.5° F	Variation in miles	Variation Per cent
5	....	4.5	....	...	....
10	9.7	10.0	9.0	1.0	10.0
20	20.1	20.2	19.5	0.7	3.5
30	30.4	30.7	29.5	1.2	4.0
40	40.8	41.4	40.0	1.4	3.5
50	51.0	51.5	49.0	2.0	4.0
55	56.5	57.5	54.0	3.0	5.5
Average					5.9

STEWART A 143565

Miles per hour	Speed at 17.6° F	Speed at 62.2° F	Speed at 118.5° F	Variation in miles	Variation Per cent
5	4.7	4.4	....	0.3	6.0
10	10.2	9.5	9.5	0.7	7.0
20	21.2	20.0	20.0	1.2	6.0
30	32.0	30.6	30.1	1.9	6.3
40	42.5	41.4	40.8	1.7	4.2
50	53.0	50.7	50.0	3.0	6.0
55	58.8	55.6	55.1	3.7	6.7
Average					5.9

STEWART A 14397

Miles per hour	Speed at 17.6° F	Speed at 76.1° F	Speed at 131° F	Variation in miles	Variation Per cent
5	3.5	....	3.8	0.3	6.0
10	8.5	8.4	9.0	0.6	6.0
20	18.9	18.5	19.1	0.6	3.0
30	29.0	27.9	28.9	1.1	3.7
40	39.5	37.8	39.1	1.3	3.2
50	48.5	47.2	48.8	1.6	3.2
55	54.5	52.2	54.9	2.7	4.9
Average					4.3

UNCOMPENSATED INSTRUMENT A

Miles per hour	Speed at 42.8° F	Speed at 69° F	Speed at 118.5° F	Variation in miles	Variation Per cent
5	....	5.5	....	...	....
10	11.3	10.6	9.5	1.8	18.0
20	22.0	20.8	18.5	3.5	17.5
30	32.5	30.7	27.0	5.5	18.3
40	43.0	41.0	36.5	6.5	16.2
50	53.0	50.5	45.0	8.0	16.0
55	59.5	56.5	49.8	9.7	19.0
Average					17.5

UNCOMPENSATED INSTRUMENT B

Miles per hour	Speed at 17.6° F	Speed at 66.2° F	Speed at 118.5° F	Variation in miles	Variation Per cent
5	5.9	5.3	....	...	....
10	11.8	10.4	9.3	2.5	25.0
20	22.9	20.3	18.2	4.7	23.5
30	34.0	30.3	27.0	7.0	23.3
40	45.7	40.9	36.7	9.0	22.5
50	57.0	50.3	45.5	11.5	23.0
55	Off scale	55.0	50.2	...	....
Average					23.0

UNCOMPENSATED INSTRUMENT C

Miles per hour	Speed at 17.6° F	Speed at 76.1° F	Speed at 131.0° F	Variation in miles	Variation Per cent
5	6.0	....	....	....	....
10	11.8	10.3	9.0	2.8	28.0
20	23.8	20.6	18.1	5.7	28.5
30	35.2	30.3	26.7	8.5	28.3
40	48.0	40.7	36.0	12.0	30.0
50	58.0	51.0	44.7	13.3	26.0
55	Off scale	56.3	49.0	....	....
Average					28.2

speedometer would read 16.5 percent high, or 8¼ miles fast at 50 miles per hour. At 25 miles per hour the error would be half as large.

The compensated magnetic speedometers give readings which vary by small amounts only, at the different temperatures, showing that the compensation device does accomplish its purpose to a large extent. In fact, the remaining changes due to temperature are of little practical importance at ordinary speeds.—G. M. Wilcox, professor of physics, Armour Institute of Technology.

HINT AS TO OILING

Rochester, N. Y.—Editor Motor Age—A long history of squeaks and minor replacements should teach the owner that many parts of the motor car require occasional oiling for which his mechanical or automatic system makes no provision. Nothing is easier for the owner who drives himself than to forget a few rather inaccessible screw-down grease cups. It is a good plan to get a list of the parts neatly typed on a card, to render the card waterproof with size varnish, and to secure it by pins in an inconspicuous portion of the dash or inside the cover of the tool box. Otherwise, even the most careful owner is likely to omit important details, if he attempts to carry the necessary list in his head.—Vacuum Oil Co., Frank B. Killian.

CHALMERS ON TRADE

Detroit, Mich.—Editor Motor Age—We have heard reports from time to time that this was not such a good season in the motor car business as last year was. But there is nothing in the condition of our own business to lead us to think these reports are true. We are now more than 100 per cent ahead of where we were last season in cars actually sold and shipped. To show the condition of our business and to answer the rumors of general hard times in the motor car business, I quote the following figures of our shipments for the first 3 months of this season compared with the first 3 months of last season:

	1909	1910
August	278	561
September	428	852
October, including the 15th	198	420
	904	1,833

This is an increase of more than 100 per cent. We naturally feel pleased with this showing. Even before we announced our 1911 models in July we had hundreds of orders on hand, and we have had a steady stream of them ever since. We have been employing 3,000 men in our factory and have been running night as well as day. We are right now in the midst of an active fall buying season. There is no other stimulant to motor car buying like the weather of the Indian summer days. The time has passed, anyway, when the motor car manufacturer expects all business to drop off as soon as cold weather comes. The motor car is an all-the-year-round proposition. It is just as useful and usable in winter as in summer for all practical purposes. A man doesn't have to have a limousine either. Because with top, glass front, side curtains and robes any car can be used for all ordinary purposes all through the winter with comfort.

There is not enough difference in the prices of raw materials all the way through, one way or the other, to justify anyone in making any cut in prices right now, nor can I see that there are going to be any such conditions. But, on the other hand, labor is higher than ever before, and tires alone cost us $50 more per car than last year. It is my observation that conditions are not unsettled with any motor car companies which have had a settled and sane business policy all the time. The price of any article has a tendency to seek the level of value of that article, just as water has a tendency to seek the level of the land. No article, whether it is motor cars or soap or clothing, can very long be sold at a price which does not justly represent the value of the article plus a fair profit to the men who make and sell it. The man who sells an article for less than it is really worth will soon drive himself out of business, and the man who sells an article for more than it is worth will soon be driven out of business by the public or else driven to lower his prices.—Hugh Chalmers, Chalmers Motor Co.

A Village of Vagabonds

A DELIGHTFUL book for an idle hour is "A Village of Vagabonds," by F. Berkeley Smith, in which is presented a group of character sketches of the quaint and interesting people found in the little fishing hamlet of Pont du Sable on the northern coast of Normandy. Here the author-artist, who is also a devotee of the gun, takes up his abode in an abandoned house by the marsh, "that lost hole of a village of sacré vagabonds," and introduces the reader to the picturesque people he meets within its fold. For European motor tourists the book has a special significance. Here we meet Suzette, the little French maid who sings all day and is in love with a French trombonist; Marianne, the fisherwoman, with her clear blue eyes, who dresses like a man, who walks with the stride of a man, gets drunk, but whose big motherly heart and arms shelter all the waifs of the village besides her own little brood of seven. Here we learn to love the dear old curé, "who is French to the backbone, with his devil-may-care geniality, his irresistible smile of a comedian, his quick wit of an Irishman, and his heart of gold," who says mass and then shoots ducks. Here, too, we meet impulsive Tanrade, an opera composer who loves an actress, the mayor of this little village of vagabonds, and a Brazilian banker who is a counterfeiter. All these and many more of the simple village folk are delineated with the true artist's eye for color and form. These little sketches are woven together by a simple love plot. The colored frontispiece and inside cover pages, typical Normandy scenes, are by the author's father, F. Hopkinson Smith, and the pen-and-ink sketches at the opening and closing of each chapter are by the author. Doubleday, Page & Co. are publishers.

NEW STEWART SPEEDOMETER SHOWING TEMPERATURE COMPENSATION DEVICE

Elements of Machine Design

"The Elements of Machine Design," part 1, by W. Caethorne Unwin, deals with the general principles of mechanics, properties of materials, and machine design. This treatise was intended to occupy a distinct field between works on applied mechanics and empirical books of rules and collections of examples of machine details. Scientific rules for machine design are given. Standard proportions and examples of details are covered and empirical rules for cases which cannot be treated scientifically. The book, consisting of 532 pages, has been revised and enlarged and has been adapted for the use of the artisan and student. The book is a cloth-bound volume, 525 pages, and each page contains drawings illustrating the department of machine work being discussed. The volume is a text book for the machinist and contains curve diagrams, formulæ and much engineering data. Published by Longmans, Green & Co., New York.

A Book for Young Folks

Young folks who hope some day to visit Europe will find "Young Americans in the British Isles" an interesting book. A party of young American girls and boys tour through the kingdom, and although the greater portion of the trip is made by train, the motor car is made use of in many places. Southwestern England is toured by motor car, and London is seen from taxicabs. After touring through England this party of young folks visit Scotland and Ireland. The book, which describes and illustrates the historical places passed through, is by Everett T. Tomlinson and from the press of Houghton-Mifflin Co., New York.

From the

GRANT MEETS TAFT—Harry Grant, winner of the Vanderbilt race, made a trip to Beverly last Friday and called on President Taft. The president was glad to meet him and said he hoped Grant would be victorious in his race at Savannah against the foreign entrants.

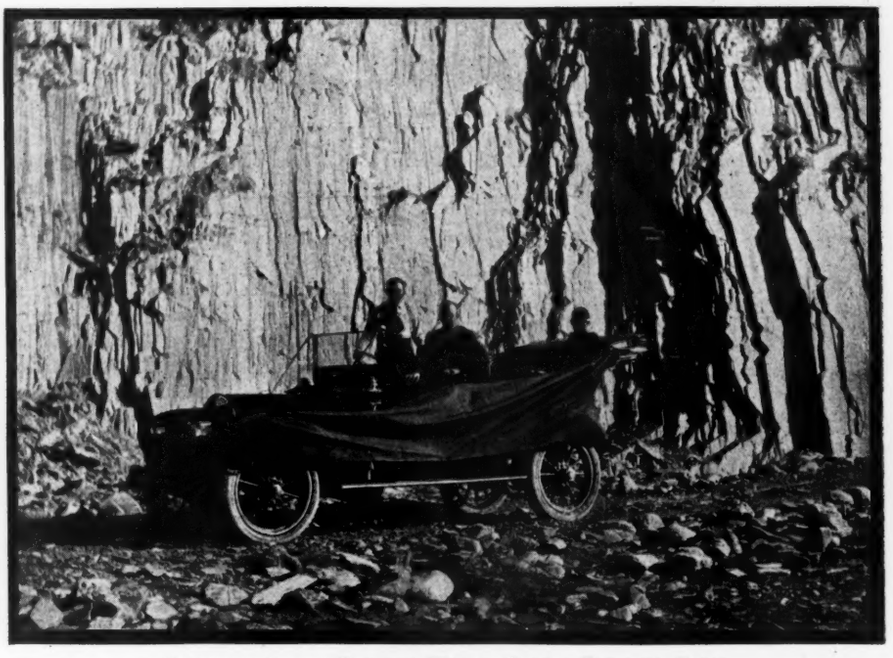
Chases Deer in Car—Giving a fine eight-pronged deer a ½-mile chase in his car was the sport recently indulged in by M. R. Renshaw, of Spokane, while returning from a hunting trip near Mica peak. The roadway at that point was walled in with high banks and shrubbery. After a lively chase the deer succeeded in getting away by jumping into the shrubbery.

Stevens a Parade Winner—In a parade held in Chester, Pa., in connection with a buy-at-home week celebration, a Stevens-Duryea owned and driven by Charles P. McCoy, of Wilmington, was awarded a silver cup valued at $100, the first prize, for having the handsomest car in line. The machine was decorated with 2,500 paper roses and 300 chrysanthemums. On the hood was a large doll dressed as the Goddess of Liberty.

Collier Gets Damages—Edward Collier, chief tester for the Thomas B. Jeffery Co., of Kenosha, Wis., has been awarded a verdict of $1,500 damages against the town of Salem, Kenosha county. Collier's car was thrown down a steep embankment and turned turtle in attempting to drive out for a buggy. Harvey Gibson was killed and Collier was seriously injured. The jury found that the town board was guilty of extreme neglect in refusing to widen the road. Several other suits for damages are pending.

Show for Springfield, Ill.—Members of the Springfield Automobile Club of Springfield, Ill., will soon commence work on the arrangements for their show, which will be given after the Chicago show and before the St. Louis exposition. It was decided to hold the first exposition last year and the state armory was secured and all plans about completed, when a movement to postpone the affair until this year was started. A committee will be named in the meeting next week to take the matter up with the chamber of commerce, which is backing the affair.

Delaware Election—The Delaware Automobile Association held its annual meeting and elected the following officers: President, T. Allen Hilles, of Wilmington; first vice-president, Joseph Bancroft, of Wilmington; second vice-president, Wilson L. Cavender, of Smyrna; third vice-president, Joseph L. Cahall, of Georgetown; secretary, Charles G. Guyer, of Wilmington; treasurer, William Stanier, of Wilmington; executive committee, in addition to the above officers, John B. Martin, John B. Bird and Charles C. Kurtz, all of Wilmington. The association considered a proposition to ask the legislature to build a state highway from the Pennsylvania line on the north to the Maryland line on the south, a distance of 100 miles, from the proceeds of a bond issue, the interest to be paid by the motor license fees.



FRANKLIN CAR IN WESTERN WILDS—CANVAS PROTECTS PAINT

New Kind of Sign—The Automobile Club of Syracuse has won unique fame for its route and danger sign crusade, but there is one which has just made its appearance at various points in Syracuse, N. Y., which wins the approval of the entire public. It reads: "Hospital block. Make no unnecessary noise. Automobile Club of Syracuse."

New Milwaukee Officers—Charles W. Norris has been elected president of the Milwaukee Automobile Club, succeeding Clarke S. Drake. Oscar F. Fischedick was elected first vice-prideat to succeed Faustin Prinz, and Dr. Louis Fuldner accepted election to the office of second vice-president to succeed George A. West. Dr. Fuldner is a former president of the club. Arthur C. Brenckle was honored with re-election as secretary and Lee A. Dearholt as treasurer.

More Directors Chosen—At the adjourned meeting of the Wisconsin State Automobile Association in Milwaukee the following additional directors were elected: R. D. Gorham, Monroe; J. E. Plum, Manitowoc; P. C. Avery, Milwaukee; C. H. Moore, Oakfield; John W. Tufts, Milwaukee; C. D. Dickinson, Appleton; Emil Schandein, Milwaukee; A. P. Cheek, Baraboo; H. O. Deysonroth, Columbus; Dr. R. W. Edden, Janesville. The board is now made up of twenty-five members and each local club is represented. The directors will meet October 21 to elect officers and discuss the 1911 Wisconsin reliability tour for the Milwaukee Sentinel trophy. A tentative route has been presented, covering 1,010 miles in 5 days. It is planned to send the pathfinder out before winter in order to stimulate interest and give the rural districts an opportunity to improve the roads before next July.

Arrest Boy Car Thieves—In the arrest of six boys, ranging from 15 to 18 years of age, the police of Indianapolis believe they have rounded up the gang that has been stealing cars from the streets for several months and, after using them, abandoning the machines, in a more or less damaged condition. The boys are being held for grand larceny and malicious trespass, and a strong effort will be made to convict them of the more serious charge of grand larceny, which carries with it a penitentiary sentence. There were fifteen machines taken during September, while several machines were taken this month.

Ball Player on Tour—Tris Speaker, Boston American league ball player, left the Boston city hall Monday morning on a 2,000-mile tour from Boston to Hubbard, Texas. Speaker will make the long ocean-to-gulf trip in a Velie. Mayor Fitzgerald invited Speaker to call at the city hall before he started. When Speaker tooted the horn on his car Mayor Fitzgerald pitched a regulation baseball from the balcony of the mayor's office in the city hall to Speaker, who caught it. Mayor Fitzgerald cut open the ball and sealed within the sphere a message to the governor of Texas. Then Mayor Fitzgerald sent a telegram to the governor of the Lone Star state, informing him that

Four Winds

E-M-F Car Descending Snoqualmie Pass, Washington

Speaker was on his way. Upon his arrival in Texas he will deliver the mayor's message and the governor of Texas will wire Mayor Fitzgerald that Speaker has completed the 2,000-mile trip.

Congress Buys Fire Wagon—After many attempts, Chief Wagner, of the Washington, D. C., fire department, has at last succeeded in getting congress to appropriate sufficient funds for the purchase of a motor car for the chief's use in answering fire calls. The successful bidder was the Carter Motor Car Corporation, of Washington, which furnished a 40-horsepower Washington touring car.

Right Kind of a Club—The Lake County Automobile Club, of Lakeview, Ore., is composed of practically every owner in that vicinity. Dr. E. H. Smith is president; Arthur W. Orton, vice-president; Mrs. E. E. Rinehart, secretary, and Dick J. Wilcox, treasurer. This club also has a good roads committee which is accomplishing much good on the roadways in Klamath and Lake counties, Oregon.

Harper Gets Cup—T. A. Harper, driving a model T Ford, was awarded the cup for winner of first place in the reliability run of the Bloomington Automobile Club of Bloomington, Ill., after two other drivers—J. L. Murray, Buick, and Velde, his partner—had withdrawn. The two other machines which had finished with perfect scores—Orlo Price in a Warren-Detroit and Harry Arnold in a Rambler—were penalized at the meeting of the contest committee, which ascertained these drivers had failed to observe a rule which called for all machines to come to a stop at all railroad crossings. This left Murray and Velde at the top of the list alone. Harper stood second. Because of the fact that this firm had been instrumental in promoting the affair, they withdrew their cars from the list of winners and first prize went to Harper. Bloomington liked this outing so well that plans are being made for another next year.

Overland's Show Plans—Arrangements have been made for the exhibiting of the Overland cars at the Paris and London shows this winter. S. Krausz, manager of the foreign department of the Willys-Overland company, has just returned from a trip of 7,000 miles by motor car through England, France, Germany, Belgium, Holland, Denmark, Norway, Sweden, Russia, Austria and Hungary. He had the distinction of being the first American tourist to take advantage of the tryptique system at International Pass. In many sections traversed it was the pioneer invasion of the American car and attracted much attention.

Children Rewarded—Boston was invaded a few days ago by a party of nearly 200 children in twenty-five motor cars, who were given an outing as a reward for trying to improve the barren spots of the city by planting flowers and carting away debris. The cars were loaned by prominent Worcester business men, and the trip included a run to Boston, where they were met by a newspaper man in a White steamer. This car was made the pilot and the children were shown the historic places of Boston, then along the route taken by Paul Revere out through Arlington, Lexington and Concord and then back to Worcester. It was a cold day, but the youngsters did not mind it. They had hot oyster stews in Arlington for lunch.

Scorcher Sent to Jail—Edward Clark is the first speeder to be sent to the house of correction in Milwaukee, Wis. Clark, a repair man, took one of his customer's cars out in the evening without permission and was caught running 27 miles an hour over a viaduct. Being unable to pay the $10 fine, he was given 30 days in the house of correction.

In Snoqualmie Pass—An accompanying illustration shows an E-M-F car in Snoqualmie pass, Cascade mountains, Washington. Up to August, 1909, the car had run 15,000 miles, when it was again entered in a 2,000-mile run, which it accomplished in 10 days, driven by Robert Fenn, of the E-M-F Seattle branch, who made three trips through Snoqualmie pass and return.

Favors Convict Labor—Governor Crothers, of Maryland, has come out in open advocacy of using short-termed convicts in the construction of the public highways. Such a policy, he believes, would result in a great saving to the state. He will recommend the adoption of such a plan in his message to the next legislature. The chief executive, however, does not favor the removal of long-termed prisoners or those convicted for serious offenses from the penitentiary for this work. But by the use of short-termed prisoners he believes much road work could be accomplished at a minimum cost to the state.

Dallas Gets Sanction—Sanction has been recently granted by the A. A. of A. for the 3 days of racing to be held on the state fair grounds track at Dallas, Texas, under the auspices of the Dallas Automobile Dealers' Club. The dates granted are October 27 to October 29. The course, although a dirt track, has banked turns. From advance reports the entry list will be a large one, and such drivers as Harroun and Dawson of the Marmon team, Chevrolet, Burman and DeWitt of the Buick, Tobin De Hymel of the Stoddard-Dayton, and others will be at the meet. The National team also is scheduled to appear.

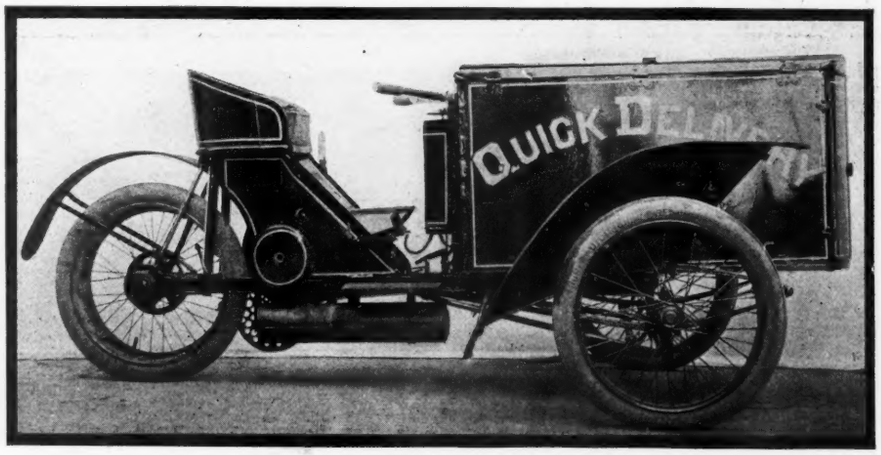
New Maryland Slate—At its annual meeting, besides electing officers for the ensuing year, the Automobile Club of Maryland mapped out a progressive campaign which it will wage during the winter. The new officers selected were: Dr. H. M. Rowe, president; Joel G. Nassauer, vice-president; Thomas G. Young, treasurer; H. M. Luzius, secretary; board of governors, John S. Bridges, C. Howard Millikin, James S. Reese, William A. Dickey, Joseph M. Zamoiski and Ernest J. Knabe. The former president, C. Howard Millikin, was placed in renomination, but he declined the honor because of business affairs. Since May, 262 new members have come in, making a total of 421 that now belong to the club.

COMMERCIAL NEEDS DEMAND SMALL WAGONS

CHARLES E. DURYEA, Reading, Pa., has brought out a small three-wheeled tri-car which complete weighs 500 pounds and which is capable of carrying a driver and 500 pounds of merchandise, or in case it is intended for passenger work there is accommodation for two others besides the driver. As illustrated herewith, it is intended for parcel delivery and has a compartment 30 inches wide, 30 inches high, and 50 inches long. A rail may be fitted to the top, or the top doors may be opened in order to take a larger load if necessary. The doors at the front and sides permit of easy access without opening the top doors in bad weather. This tri-car may be used with solid or pneumatic tires. The motive power is a single-cylinder two-cycle motor, 3¾-inch bore and stroke. It is located directly in front of the rear wheel with its head slightly raised to allow an excess of oil to flow back to the exhaust port. It is so supported that the cylinder may be quickly removed for cleaning.

Cooling of the motor consists of copper strips or flat spines held in U-shaped grooves in the cylinder wall by a wrapping of steel wires. These grooves reduce the weight of the cylinder and provide a maximum surface against which the wire binds the copper, the wire being of such size as to fit tightly into the bed of the spines and force them into the groove. As a result, the copper surface is brought into contact with the iron of the cylinder wall, which is many times the thickness of the copper. When it is remembered that copper transmits heat from seven to twelve times faster than cast iron, the efficiency of this cooling arrangement will be seen. So efficient is this cooling system that a fan is not necessary.

The drive from the motor to the rear wheel is the Duryea roller arrangement used for several years on these machines. It consists of a two-size roller, bolted to the inside of the flywheel hub, and surrounding the crankshaft bearings. The roller surfaces are ground to both guide the idler and afford a better grip than a smooth roller. The diameter of the driving portions are 3 and 6 inches respectively. The roller is made of high-grade steel and tempered to withstand pressure and wear. To the driven road wheel is likewise bolted a two-size ring which is grooved and into its grooves are sunk soft steel rings which take the drive from the idler.



DURYEA THREE-WHEELER CARRIES 400-POUND LOAD

The Duryea Three-Wheeler

The idler is carried by a shifting lever and may be shifted slightly to one side or the other to engage at one time the large driven and small driver or the small driver and large driven parts. Thus, by simply dropping it out of engagement with one pair it may be shifted to one side and brought into engagement with the other pair of propelling parts. This makes a most simple drive, and having no teeth the idler may be brought into engagement as smoothly as desired, so no clutch is necessary. This drive does away with any gears or chains. The idler is mounted on ball bearings, as are the wheels, but its size is such that it feeds into place and drives with little or no pressure on the lever. The tri-car speeds up to 12 or 15 miles with the low gear and twice that with the high. The fuel tank is under the seat, and the coil and batteries are in cases at the rear of the van. The single-spark system is used, making the current consumption very low.

THE PENN-UNIT TRUCK WITH DEMOUNTABLE MOTOR

PARIS COUNTS BUSINESS MOTORS

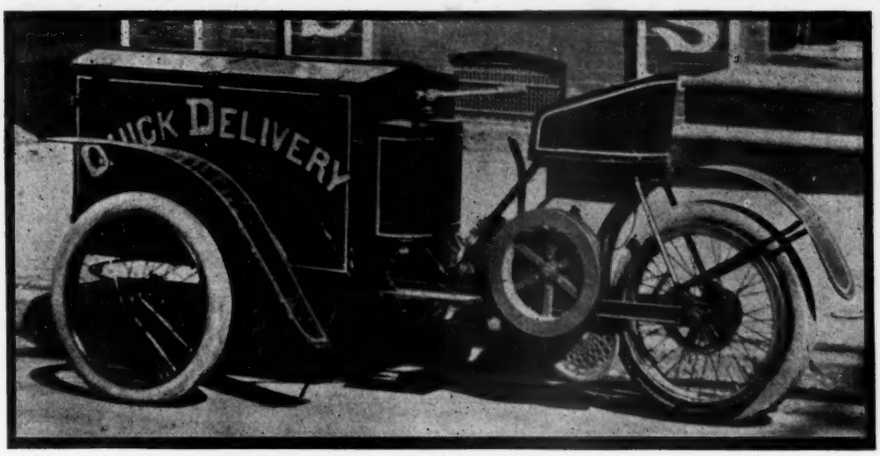
Owing to the fact that no taxation is imposed on purely commercial motor cars, it has been impossible to know exactly how many motors of this type were in use in Paris and the surrounding district. This lack of knowledge has just been remedied by carefully compiled statistics secured by the technical committee of the Automobile Club of France. According to these there are 155 large-capacity omnibuses owned by the Paris General Omnibus Co., and forty-eight omnibuses of small capacity, seating ten to twenty people, owned by other companies. The General Omnibus Co. is under a contract with the city of Paris to increase its motor buses to 800 within a period of 3 years; this change is being made gradually. There are 1,095 trucks and motor delivery vehicles in daily service in Paris or its suburbs. These can be classed as follows:

Useful load, 1,760 pounds to 2 tons	234
Useful load, 2 tons to 5 tons	179
Useful load, 5 tons and above	143
Other commercial vehicles	120
Postal vans, carrying 1,700 to 2,600 lbs.	156
Tractors and locomotives	60
Total, including omnibuses	1,095

These figures do not include taxicabs, which are now slightly more numerous than horse-drawn cabs, or the city fire engines, all of which must be converted to power within a period of 4 years.

Statistics have been obtained of the fuel employed on the 556 vehicles carrying from 1,700-pound to 5-ton loads. In 416 cases this either is gasoline or benzol. It is impossible to differentiate between these two fuels, owing to the rapidity with which the change is made from one to the other. Kerosene is used only on five trucks; alcohol in one case only. Coke is employed on 131 vehicles and low-grade coal gas on three. The vehicles using kerosene are Darracq-Serpollet steamers, a type of ve-

AND TRUCKS SPECIALLY DESIGNED FOR WORK



ONE-CYLINDER MOTOR USED ON DURYEA THREE-WHEELER

hicle which no longer is manufactured. The alcohol was a test case. The coke was employed on such steamers as the Purrey, Turgan and Schars, largely used for carrying paper from the mills in the suburbs to the printing offices in the center of the city. The motors using coal gas are built by the Cazes company.

PENN-UNIT MOTOR CARS

By assembling the motor, clutch, magneto, carbureter, and oiling device on a subframe, independent of the mainframe of the truck so that by the removal of two bolts and breaking several electrical connections the complete unit can be moved forward and detached from the car, the Penn-Unit Car Co., Allentown, Pa., has struck the keynote of demountability and interchangeability in commercial car manufacture. Making up this unit is a two-cylinder opposed four-cycle motor, with 5-inch bore and stroke furnishing a rating of 20 horsepower. The clutch is a multiple-disk type made up of twenty-one corrugated pressed steel disks alternating with phosphor bronze and steel ones. The corrugations are introduced to increase the frictional area. The transmission system incorporates a selective set with three forward speeds. The jackshaft is a corporate part of the gearset and final transmission is by side chain. The running gear of the chassis is built around a channel iron frame supported on semi-elliptic springs in front and a rear platform suspension. Spring eyes are fitted with Tobin bronze bushings. Both axles are steel forgings with ball bearings carrying the wheels. The front pair takes 36-inch tires, and the rear pair 40. The standard body measures 80 inches back of the driver's seat with a width of 44 inches.

An analysis of the motor shows that it is fitted with the Bosch magneto, Stromberg carbureter, and circulating oiling system. An allowance of .001 inch is given in grinding the cylinders. In the gearset chrome nickel steel is employed in the shafts and gears. The differential is in-

Packers Build Model Truck

cluded and formed as a unit with the gearset. The jackshaft and bearings are enclosed in steel tubing, the construction allowing of the withdrawing of the jackshaft if necessary. The transmission, differential, and jackshaft form a separate unit supported at three points, like the power plant and almost as readily demounted. Two sets of brakes are fitted. Both are internal expanding types operating on the rear-wheel drums. The car control is standard, there being pedals for the clutch and service brake, and left-hand levers for the emergency brakes and the gearset. The steering column is mounted on the left side. The worm-and-sector type of steering gear provided with eccentric bushings for wear is fitted.

THE PACKERS TRUCK

A newcomer in the commercial truck field is the Packers truck, now being produced in its first season by the Packers Motor Truck Co., Pittsburg, Pa. As is pretty well known, Pittsburg is the home of a number of meat-packing establishments; also, it is a hilly city. The meat packers were willing enough to adopt motor trucks in their business if they could find one that would get the loads over the Pittsburg hills. Failing in this, a number of them pooled their interests and began the construction of a truck—for their own individual use—which would be equal to conditions peculiar to Pittsburg and its environs. So striking was the success of the experiment—for such it had been up to the time of the first real tests—that more capital was added and the building of trucks for sale was begun.

The Packers motor has four cylinders, cast singly and cooled by water. Its horsepower rating is 50. The motor is carried under a hood at the forward end of the chassis, with the radiator in front. A dual system of ignition is provided. The drive is by double chains. A distinctive feature is the 150-inch wheelbase, its unusual length eliminating excessive overhang of the body. Semi-elliptic springs are used in front and rear. The wheels, front and rear, are 36 inches in diameter.

COAL TRUCK IN SEATTLE

With the arrival of the first typical winter day in Seattle last week business men were interested in the work of the big 3-ton truck, which has been in use the past month by the Pacific Coal Co. of that city. It was the first motor coal truck sold in that city. On the day in question it negotiated the steep Denny way grade between Tenth and Fifteenth avenues, carrying the usual load of 4 tons. That thoroughfare is particularly treacherous in rainy weather, because it is popular with motorists, and the asphalt pavement is covered with oil. The oil, mixing with the moisture precipitated, makes it practically impossible of ascent. The large 3-ton Rapid truck, however, made the grade easily with a full load, being especially equipped for this work with double block tires on the rear wheels. The vehicle has delivered 21 to 35 tons of coal a day since it was placed in commission.

PACKERS TRUCK SPECIALLY BUILT FOR PACKERS' WORK

The Motor Car Repair Shop

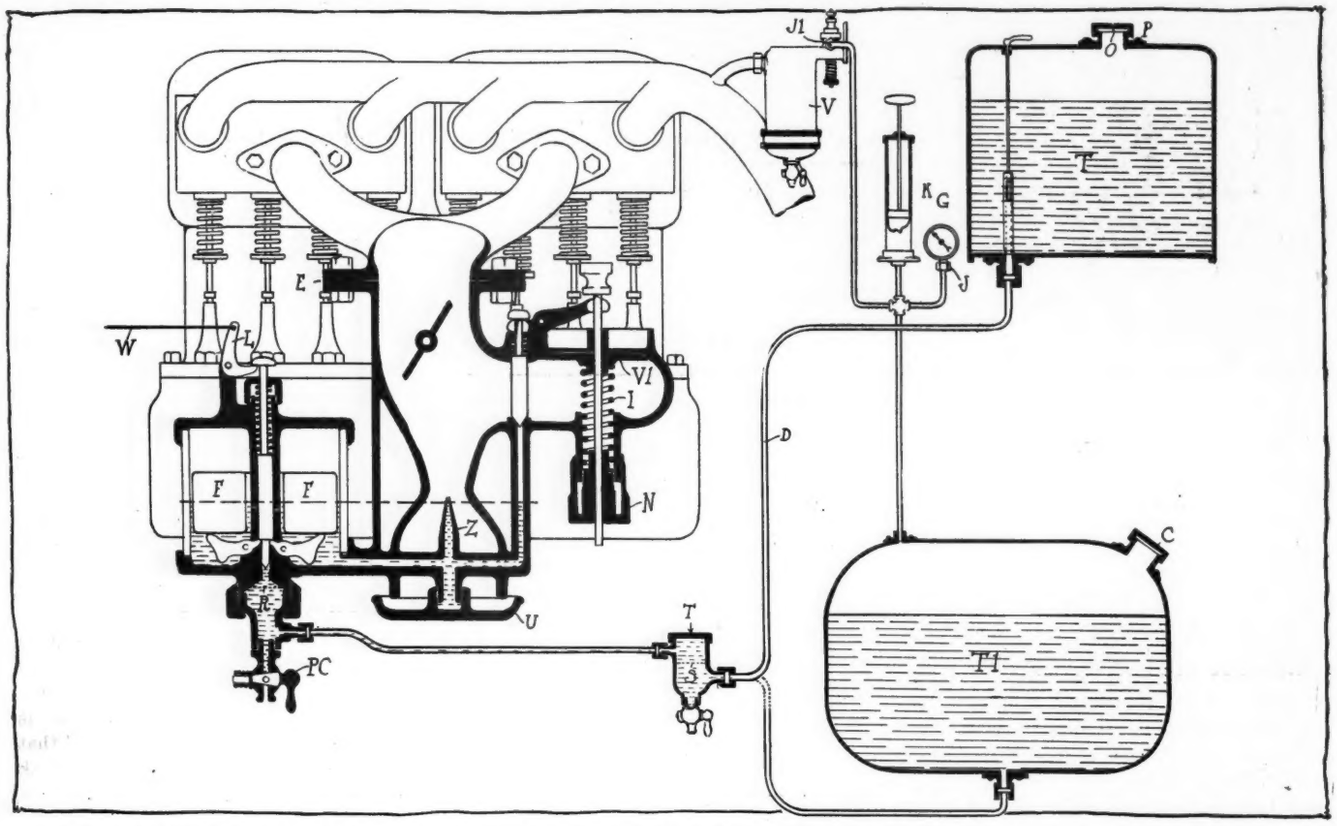


FIG. 1—DIAGRAM SHOWING FEATURES OF A GRAVITY OR PRESSURE-FEED FUEL SYSTEM WHICH ARE FUNDAMENTAL CAUSES OF TROUBLE

ORDINARY motor troubles are generally of three kinds. Either the engine will not start, it runs irregularly, or it runs regularly, but with a noticeable falling off in power.

IF ENGINE WILL NOT START

No gasoline in fuel-tank.
Fuel-tank valve may be shut off.
Carbureter needs priming.
Motor cold, cylinders need priming.
Vent-hole in tank-cap closed.
Cylinders may be flooded, over-primed.
Water in carbureter.
Filter clogged or full of water.
No pressure in fuel-tank.
Pressure-valve or pump out of order.
Leak in pressure-valve.
Spraying-nozzle of carbureter clogged.

IF ENGINE RUNS IRREGULARLY

If the engine runs irregularly, misses regularly or irregularly or will not slow down:
Air-leak around spark, or cylinder-plugs.
Air-leak around inlet valve-stems.
Air-leak around inlet manifold gaskets.
Hole in manifold itself.
Water in carbureter.
Carbureter out of adjustment.
Auxiliary air valve-spring weak.

IF ENGINE OVERHEATS, LOSES POWER

Fuel-level in float-chamber too high.
Spraying-nozzle-opening too large.
Float-mechanism out of order.
Float punctured, contains fuel, too heavy.
Float soggy, soaked with fuel, too heavy.

It very often occurs that the motorist requires not so much to be informed as to be reminded, so a glance through this list in conjunction with Fig. 1 may serve as a reminder. Assuming that the engine will not start, and running the eye down the list, an examination of the fuel tank T or T1 will readily show whether or not there is fuel therein; whether or not the fuel tank valve is shut off, and also whether the vent hole H in the tank-cap of a gravity system is closed. The carbureter may be primed and an effort made to start the motor, to ascertain if this is the cause of the difficulty. If the cylinders have been primed considerably they may be flooded and the proper course is to close the throttle, open the petcocks and spin the motor with the ignition turned on, until an explosion occurs.

If water in the carbureter is suspected one has but to open the petcock at the bottom of it and drain out a few ounces of its contents. Should the filter T be suspected it should be drained, and if the flow therefrom is inhibited it should be opened and the strainer S renovated. In a pressure feed fuel system the pressure gauge G should show whether or not there is fuel in the tank T1. Should there be no pressure the valve V may be clogged or if a pump is employed it may be out of order. There also might be a leak in the pressure valve of its connection J1, or in any of the other connections between this one and the tank T1. If the carbureter does not flood or the fuel leak therefrom when the priming lever L is drawn up, then the spraying nozzle Z of the carbureter may be clogged; or the needle valve, if there is one used, shut off.

If the engine runs irregularly an air leak around the spark or cylinder plugs may be found by applying oil around them. An air leak around the inlet valve stems may be discovered by holding a large piece of waste or cloth saturated with gasoline around their openings while the motor is in operation. An air leak around the inlet manifold gaskets or in the manifold itself may be discovered in the same manner. Draining the carbureter generally will remove any water therefrom, but if convenient it might be well to remove the float therefrom and be assured it is clean. If the air valve spring I of the carbureter is too weak it must be adjusted either by means of the adjustment N provided, by stretching it, or by fitting a new spring.

In case the motor shows a noticeable loss of power or overheating occurs, the carbureter generally will flood if the fuel level in the float chamber is too high; the spraying nozzle opening is too large; adjustment of the needle valve is required; or a new nozzle must be fitted. When the float mechanism is out of order the carbureter will flood. Flooding also will occur if the float is punctured and fuel has leaked in, or if it be a cork one which is soaked with fuel.

Current Motor Car Patents

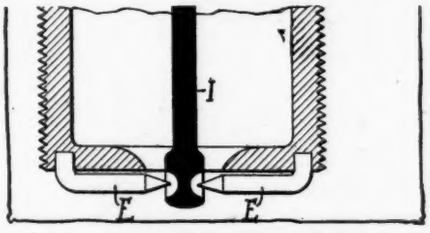


FIG. 1—NEW SPARK-PLUG ELECTRODES

ELECTRICAL Ignition Appliance—No. 971,908, dated October 4; to Archibald Montgomery Low, Brook Green, London—This patent covers an electric ignition appliance comprising a pair of electrodes with a spark gap between them, as shown in Fig. 1. The insulated electrode I has hemispherical concavities of a size commensurate with the spark gap, and the other electrode E has a point entering these concavities, terminating at practically the axial center thereof, so that the spark may reach any part of the wall of the concavity with a uniform jump.

Reversible Car Seat—No. 972,020, dated October 4; to Omar F. Neff, Milford, Ind.—This patent relates to a vehicle seat comprising a seat frame, a seat fastened permanently to this seat frame and occupying approximately one-half thereof, a second seat adapted to occupy the remaining half of the seat frame, a pivot pin extending from the bottom of the second seat, a slotted bar fastened to the seat frame and receiving this pin and screw actuated means on the seat frame for clamping and releasing the second seat, whereby it may be shifted and thrown to face either forward or backward.

Electro-Magnetic Spark Plug—No. 971,544, dated October 4; to Emil Kuhn, Zurich, Switzerland—As shown in Fig. 2, this patent relates to an electro-magnetic spark plug for internal combustion engines, comprising a casing C, a plurality of electro-magnets M arranged on a shaft T, a number of stationary polar pieces P arranged to line the interior of the casing, a contact pin N attached at right angles to the bottom of the shaft T, a stop S at the lower end of the casing, with which the contact pin makes contact, and means for causing oscillation of the shaft to bring about a spark when contact is broken between the stop S and the contact pin N. An insulated terminal R is mounted in the casing, and the shaft T, which has an electrical connection with this terminal, is pivoted at V on a soapstone bearing. A spring S passes around and has one end secured to the shaft, and its other end is secured to a flange of one of the polar pieces P. This spring is adapted to move the contact pin toward the stop S; contact between the contact pin N and the stop S being magnetically broken when a current is passed through the windings on the magnets M, which causes them to be swung around into contact with the flanges of the pole pieces P. Every time connection between the pin and stop is broken a spark occurs.

Turn-Table for Motor Cars—No. 971,796, dated October 4; to Albertus O. Slentz, Canton, O.—This patent relates to a ball-bearing turn-table which is constructed entirely of steel or iron and is most adaptable to garages in which the space is limited. As shown in Fig. 3, it comprises a track T, a series of balls B located upon the track, a turn-table support S carried by the balls, and the necessary framework and flooring required to complete the structure. The turn-table support consists of an inner cylindrical member C and an outer ring R, which are rigidly attached to each other by trusses adapted to be connected at their inner upper ends to the cylindrical member, and inner lower ends to the outer ring member. Another set of trusses U bind the outer ring G to the inner cylindrical member C, and a series of plates P are mounted on these trusses to form the platform flooring. The turn-table is pivoted at the point P.

Charge-Forming Device—No. 971,971, dated October 4; to Hiram Cassedy, Jr., and Robert Seal Purcer, Brook Haven, Miss.—This patent covers a charge-forming device for internal combustion engines which, as shown in Fig. 4, consists of an extra pump cylinder designed to form a charge and force it under pressure into a specially-adapted mixing chamber in the inlet pipe of the motor. The pump cylinder C has a piston P therein which is driven off an eccentric on the crankshaft. As this piston descends a vacuum is produced in the cylinder, a charge of liquid fuel is drawn in through the fuel inlet I, as the piston uncovers it, and, descending a trifle lower, an air inlet A is uncovered and a supply of air admitted. The supply of air to the cylinder remains constant, but the fuel supply is adjustable. As the piston ascends this mixture of liquid fuel and air is compressed until the piston nears the upper end of its stroke, when a valve in the center of the piston head comes in contact with a nipple in the cylinder head and is opened. This valve permits the compressed fuel mixture to flow through suitable piping G into the mixing chamber M, which is attached to the inlet pipe of the motor. Means for further diluting this charge is provided in connection with the mixing chamber M.

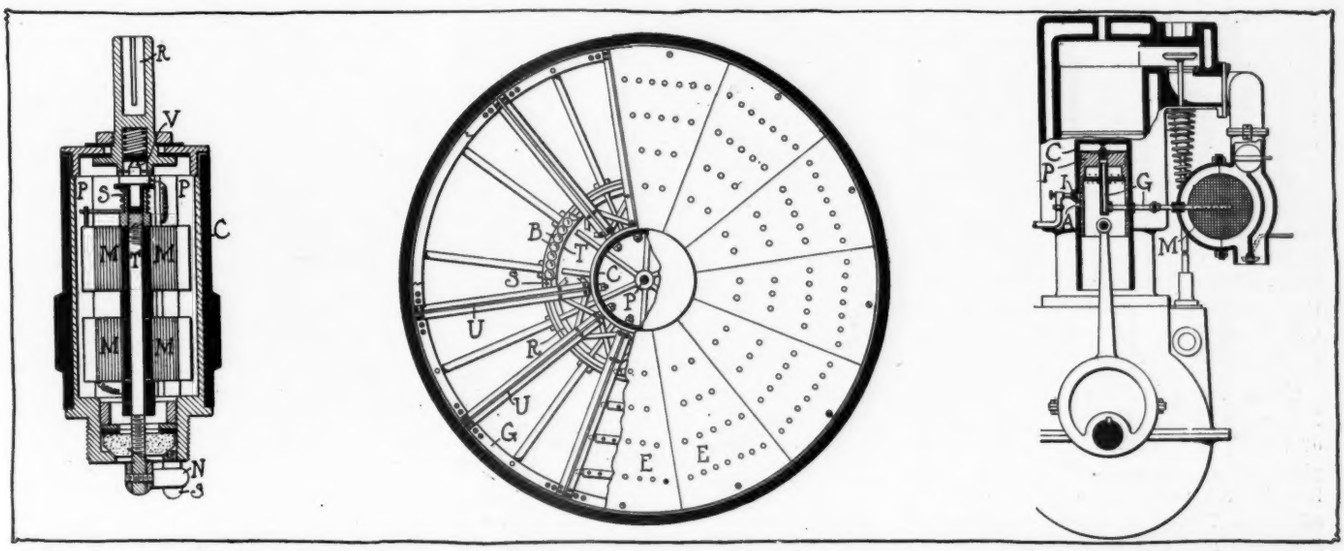
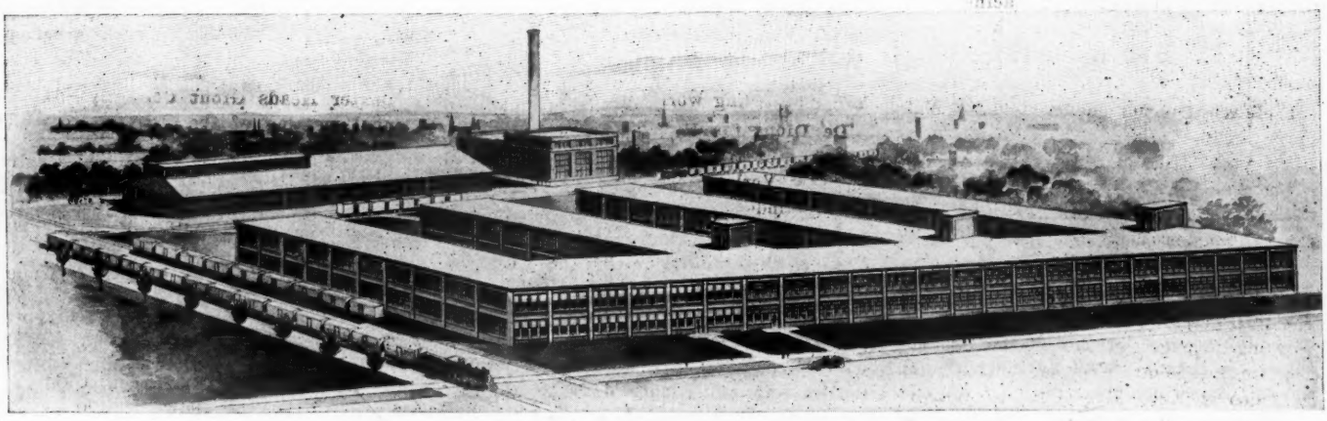


FIG. 2—ELECTRO-MAGNETIC SPARK PLUG

FIG. 3—TURN-TABLE FOR MOTOR CARS

FIG. 4—CHARGE-FORMING DEVICE

Among the Makers and Dealers



IMMENSE PLANT OF THE GRAMM COMPANY, WHICH MAKES MOTOR TRUCKS

BAILEY WITH PETREL—George Bailey severed his connection with the Buckeye Mfg. Co. to become general sales manager of the Petrel Motor Car Co., of Milwaukee, Wis.

From the Four Winds—In 1 day there appeared at the E-M-F Co.'s Detroit plant last week representatives of retail firms in London, England, Adelaide, Australia, and Shanghai, China.

Another Fisk Branch—The Fisk Rubber Co. is to open a Hartford, Conn., branch in the very near future, but just where it is to be located has not as yet been announced.

Goodyears at State Fair—Of the sixteen different kinds of tires represented at the Michigan state fair the Goodyear was the leader in point of numbers, it is claimed. On the 125 machines exhibited there were twenty and one-half sets of Goodyear tires in use.

In the Market—The Racine Mfg. Co., of Racine, Wis., will soon be in the market for equipment, including individual motors, for the additions to the new plant. The main building is completed and orders for motor car bodies are being filled with expediency.

Will Increase Stock—Notices have been sent out for a special stockholders' meeting of the Royal Rubber Co., of Akron, O., to be held October 22, at which time the proposition to increase the capital stock of the corporation from $50,000 to $200,000 will be acted on. T. Oscar Evans is secretary of the company.

Truck Plant Started—The Stephenson Motor Car Co., of Milwaukee, Wis., builder of the Utility truck, has opened its new plant at South Milwaukee, which was leased for 1 year with a 3-year option in addition. The plant, formerly occupied by a wrench and tool concern, has been entirely remodeled and a new equipment installed. Thirty to forty men are now being employed. George L. Stephenson is president of the company.

E-M-F Top Plant—Plant 8 has been added to the family of the E-M-F company. It is located at Abbott and Fourth streets, in Detroit, and will house the top factory of the company. Machinery is now being installed.

Pittsburg Dealers Elect—The Automobile Dealers' Association of Pittsburg held its annual meeting at its headquarters, 5915 Baum street, East End, last week, and elected officers as follows: President, W. N. Murray, who is president of the Standard Automobile Co.; vice-president, F. D. Saupp; secretary, Edward C. McCurdy; treasurer, C. P. Moore.

Will Sell Plantation—The stockholders of the Wisconsin Rubber Co., of Madison, Wis., voted to sell the plantation in Mexico to a foreign syndicate through a New York attorney at $3,200,000, or a profit of 266 per cent on each man's investment. The plantation of 4,000 acres has been one of the most successful in Mexico, turning out large quantities of crude rubber.

Monster Truck—The Cathcart Transfer and Storage Co., of Atlanta, Ga., is the owner of the biggest motor truck now in commission in the south, it is claimed—a Grabowsky. The van is so long and so high that there is not a garage in Atlanta which it can enter. The Cathcart company is building a special garage in Atlanta to accommodate this truck, which is doing good work.

Fire Is Forgotten—The Racine Mfg. Co., of Racine, Wis., builder of motor car bodies, has increased its capital stock from $400,000 to $600,000 in order to care for expansion of trade. The company's plant was destroyed by fire on December 12, 1909, but has now been rebuilt. New departments are being opened every week, and it has just been announced that the trimming department will begin on a 5-day schedule for the week. As soon as the rush begins, which will be in less than a month, all departments will be put on full time.

Making Roadster Also—The J. I. Case Threshing Machine Co., of Racine, Wis., will add a roadster to its line of Case cars manufactured by the Pierce Motor Co., of Racine. It will have the same chassis as the regular model. The motor department is working overtime, a large number of employes remaining until 8 o'clock in the evening trying to catch up with orders.

Stock for Employes—Benjamin Briscoe, president of the United States Motor Co., has adopted a co-operative plan whereby the employes of the concern may become stockholders. He has set aside $1,000,000 worth of 7 per cent cumulative stock which is offered to dealers, branch house managers and other employes, with participation in proportionate distribution of a block of common stock aggregating $250,000.

Modern Photography—The photography of motor car parts has brought into play a novel set of problems to the camera experts, the accompanying illustration clearly indicating the manner of its solution. The parts are grouped on a tray covered with snow-white cloth and are snapped by the operator, who works from the top of the platform. Each part is numbered and a clerk jots down the names as the grouping proceeds. As a rule, the photography of the various parts of a car is a task to which a producer assigns a force of trained mechanics and one completed car in running order. An accompanying novelty not shown in the photograph is the photography of a complete chassis. This is usually done with the assistance of a block and tackle, which lifts the car bodily off the floor into a characteristically look-pleasant attitude of perpendicularity. The scene depicted was occasioned by a

thorough revision of parts catalogs which recently took place at the E-M-F company's plant in Detroit, a bridge contiguous to the company's photograph gallery being employed for the operations.

Mitchell Plant Improvements — The Mitchell-Lewis Motor Co., of Racine, Wis., dust-collecting and a self-feed boiler system for the big plant with the Cyclone Blow Pipe Co., of Chicago.

Wallerich District Manager—Carl Wallerich has been appointed a district manager for the Willys-Overland Co. His territory will be Indiana, Illinois, southern Michigan and southern Missouri. This territory includes four of the country's largest distributing cities—Detroit, Chicago, Indianapolis and St. Louis.

Koto Changes—A. S. Koto, formerly advertising manager of the Warner Instrument Co., of Beloit, Wis., has retired from the Odee & Koto Mfg. Co., to organize which he left the Warners. The Odee & Koto concern built gasoline engines, and Mr. Odee is now reorganizing the company to continue the business. Mr. Koto will resume connections with the Warner Instrument Co.

Lewis Will Try Again—William Mitchell Lewis, president of the Mitchell-Lewis Motor Co., of Racine, Wis., who was defeated for the Republican nomination for governor of Wisconsin at the September primaries, has already intimated that he will run again in 1912. This was Mr. Lewis' first attempt in politics and the brilliant run he made in the face of decided handicaps caused astonishment.

Importers Organize — The Automobile Importers' Association was organized October 11 in New York. Jesse Froelich, of the Benz, and E. Lascaris, of the de Dion-Bouton, are the incorporators. It is understood that it is the intention of the association to have an exhibit January 2 to January 7 in the ball room of the Astor Hotel, where 18,000 square feet of floor space will be available.

Differences Settled—At a special meeting of the stockholders of the Four Wheel Drive Auto Co., of Clintonville, Wis., all differences between the company and its promoters over the commission question were satisfactorily settled and the company will now proceed without the least bit of friction. The erection of the factory was postponed until March 1, and the machine shop of Zachow & Besserdich, inventors of the car, has been leased.

Brownell's Plans—The F. A. Brownell Motor Co., of Rochester, N. Y., is enlarging and increasing the capacity of its plant to handle at least 5,000 motors and transmissions per year. A. J. Farmer, formerly factory manager of the Northway Motor and Mfg. Co., one of the General Motors Co.'s plants, is with the F. A. Brownell Motor Co. as general manager. R. A. Booker, formerly assistant superintendent of the Northway company, has been engaged as superintendent, while J. L. White, formerly purchasing agent, and William J. Chipman, formerly chief draughtsman of the Northway company, have been engaged to take like positions with the Brownell company.

Empire Addition—A large addition is being erected at the Empire car factory in Indianapolis. The new building will have facilities for testing a number of completed chassis and will also be used for final assembling work and as a repository.

De Dions for Uncle Sam—E. Lascaris, manager of the de Dion-Bouton company of New York, reports the sale of three eight-cylinder 50-horsepower cars to the war department for use in the mail system in the Philippines. The sale also includes four 40-horsepower trucks, four 2-ton trailers and a 40-horsepower omnibus.

Will Quit Making Cars—From an authoritative source comes the announcement that the New Departure Mfg. Co., of Bristol, Conn., has decided to give up the manufacture of motor cars of the pleasure type. The reason given is that the concern is so busy with what might be called its other line of production—coaster brakes, bicycle bells and ball bearings of every description.

Bretz Has Detroit Office—The J. S. Bretz Co. has opened up a western office and salesroom at 1215 Woodward avenue, Detroit. The suite of offices occupies the whole of the second floor of a new two-story brick, stone and plate-glass building that was erected especially for motor car use in the heart of the motor district. H. J. Porter and J. W. Hertzler, the western sales representatives of the Bretz company, will make their headquarters at the new address and show a line of F. & S. annular ball bearings, German steel balls, U. & H. master magnetos and Bowden wire.

PHOTOGRAPHY AT E-M-F PLANT

Goodyear Opens Branch—The Goodyear Tire and Rubber Co. has opened a branch salesroom in Toledo. The new concern is located at 909 Jefferson avenue. The branch will be in charge of M. M. Norton.

Dexter Heads Grout Company—At the annual meeting of the Grout Automobile Co., Orange, Mass., last week, the following officers were elected: President and secretary, G. E. Dexter; treasurer, E. S. Hall; directors, E. S. Hall, G. E. Dexter, H. F. Misener; general manager, E. S. Hall; selling agent, Reginald Wade; superintendent of factory, H. F. Misener.

After a Truck Plant—The Tulsa Automobile and Mfg. Co. expects to occupy its new factory building at Tulsa, Okla., on December 1. The building is 100 by 200 feet and is made of brick. The Tulsa company is capitalized at $200,000 and is organized for the purpose of taking over an eastern plant now manufacturing motor trucks.

Cross Handling Gramms—Clifford J. Cross, until recently general manager of the American-La Franche Fire Engine Co., of Elmira, N. Y., has been elected president and treasurer of the Cross-Magill Motor Truck Co., of New York, which will control all eastern territory for the Gramm truck. The offices of the New York concern are located at 30 Church street.

Columbus Wants a Show—The board of governors of the Columbus Automobile Club will meet soon to take up the matter of a show to be held in Columbus, O., some time about the holidays. Since the collapse of the Columbus Auditorium the club members are at a loss as to a suitable building for the show, and there is some discussion of going to the Ohio state fair grounds. Several other buildings are also being considered.

In New York and Springfield—The Scheu-Dexter Mfg. Co. has opened an office at 1777 Broadway, New York city, and also an office and store at 129 Bridge street, Springfield, Mass. This concern is putting on the market Scheu's High-Low headlight controller, a device for regulating the headlights of a car from high to low flame, and vice versa, from the driver's seat. The company is a New York corporation recently organized.

Rapid and Reliance Combination—During the past month an amalgamation of the Rapid and Reliance selling agencies in Kansas City has been perfected. H. C. and H. G. Shimp, formerly of the Kansas City Rapid Motor and Transportation Co., and Estell Scott, representing the Reliance Motor Truck Co., have joined forces in a new selling organization to be known as the Rapid-Reliance Co. of Kansas City. The new company will erect a new garage and salesroom.

Brief Business Announcements

COLUMBUS, O.—Farin E. Hatch has opened a repair shop at 1146 North High street.

New York—James Clow & Sons, of Havana, Cuba, have been appointed agents for the Lozier car for Cuba.

Chicago—E. T. Wells has taken the agency for the Imperial, made at Jackson, Mich., and is located at 1407 Michigan avenue.

Portland, Ore.—The J. W. Leavitt Co. will erect a two-story and basement building 50 by 100, concrete and fireproof, to cost about $40,000.

Slayton, Minn.—L. A. Williams and J. K. Bennett have established the Slayton Automobile Co. will erect a garage in this place.

Syracuse, N. Y.—J. H. Ficken, of New York, has arrived here to represent Continental tires. His place of business will be at 209 Townsend street.

Chicago—A. V. Pellet, formerly with the Eisemann Magneto Co., has opened a magneto repair shop in Chicago, being located at 1461 Michigan avenue.

Omaha, Neb.—The new garage of the Ford Motor Co. will be opened about October 15. The structure is one of the largest and most pretentious motor buildings in the city.

Philadelphia, Pa.—Roger M. Dickhut is preparing plans for a large garage to be built at Forty-ninth and Chestnut streets. The structure will be 50 by 250 and will have accommodation for 100 cars.

Detroit, Mich.—Stephen Holt has been appointed eastern selling representative of the Abbott Motor Co., of Detroit, and will have New York, Pennsylvania, New Jersey and Maryland, with headquarters at Philadelphia.

Syracuse, N. Y.—The W. King Smith Co. is now handling the National and Matheson cars and the Gramm motor truck, and is removing from 109 South State street to the corner of West Willow and North Clinton streets.

Cincinnati, O.—The Enterprise Brass and Plate Co., of Cincinnati, has been incorporated with an authorized capital of $25,000 to manufacture and sell motor car mountings and supplies by M. Charles Weiglein, C. J. Peimekamp, George Apple, Caroline Apple and M. C. Weiglein.

San Francisco, Cal.—Plans are now complete for a new salesroom and garage for the Pioneer Automobile Co. The building will be three stories, concrete, 60 by 12, on the corner of Van Ness and Locust avenues. The main salesroom will be 60 by 60, with a garage in the rear of the same dimensions. The main salesroom will be 20 feet high with a mezzanine floor 60 by 20, which will be used for the office of the company.

Cincinnati, O.—The Al-Ton Motor Co., of Akron, has increased its capital from $50,000 to $100,000.

Lansing, Mich.—The Havers Automobile Co., of Port Huron, will soon open a plant here for the manufacture of a six-cylinder runabout.

Cedar Falls, Ia.—Fred Mitchell, of Ackley, Ia., has bought the garage of Arthur Walton at Cedar Falls and has taken possession of the business.

Seattle, Wash.—Garage and salesroom at 310 Pike street is now occupied by W. H. Barnes, northwestern dealer for the Rapid Motor Vehicle Co., of Pontiac, Mich.

Boston, Mass.—The Butler Motor Car Co., 12 Harcourt street, has taken over the sale of Reliance trucks, which will be sold in combination with the Rapid line hereafter.

St. Louis, Mo.—W. H. Parsons has been appointed assistant manager of the St. Louis branch of the Goodyear Tire and Rubber Co. He succeeds H. C. Waite, who has taken charge of the company's branch house at Dallas, Tex.

Boston, Mass.—Burton A. Clark has joined the Boston branch of the Thomas as a member of the sales force to fill the vacancy caused by the resignation of Mr. Frost. Mr. Clark was with the Michelin Tire Co. for some years.

Marshalltown, Ia.—A deal has been closed with F. L. Randall, of Boulder, Colo., who will come to Marshalltown to start a new concern for the manufacture of steel and leather tire protectors, to be known as the Central Tire Co.

Detroit, Mich.—J. S. Eby, of West Liberty, Ia., has become state agent for the Abbott-Detroit and will shortly open garage and salesrooms in Davenport and West Liberty, from where he will distribute the Abbott-Detroit.

St. Paul, Minn.—Joseph L. Ware, of J. L. Ware & Co., has purchased from Ezra A. Upham for $10,000 a strip of land on the south side of University avenue with a frontage of 200 feet on University avenue, 31 feet on Pelham and 247 on Bayard. Here Mr. Ware intends to build a motor truck factory.

Milwaukee, Wis.—R. W. Rutt, of Chicago, has been placed in charge of the Wisconsin state agency for the Brush runabout. The Stephenson Motor Car Co., which represented the Brush in Milwaukee and Wisconsin, has retired from the agency field to devote all of its attention to the manufacture of Utility motor trucks. There will be no change in the local agencies throughout Wisconsin.

Philadelphia, Pa.—The Winton Automobile Co. has opened its new salesrooms on North Broad street with A. E. Maltby as manager.

Philadelphia, Pa.—Spencer Roberts is preparing plans for a two-story brick fireproof garage 60 by 40 at Thirty-seventh and Ludlow streets for the Lorraine Motor Co.

San Francisco, Cal.—A. J. Smith, the Elmore agent, has removed his salesroom and garage from 342 Van Ness avenue to his new headquarters at 561-63-65 Golden Gate avenue.

Albia, Ia.—For the purpose of manufacturing and marketing the invention of W. O. Meissner, in the shape of a new magneto, a company has been organized. The directors are J. S. Moon, B. P. Castners and W. O. Meissner.

Boston, Mass.—Frank S. Corlew, who formerly had the Velie in Boston, now has the Wilcox truck. His temporary headquarters are on Devonshire street. The Coughlin-Corlew company has disbanded since the Velie established a branch.

Hartford, Conn.—Foster & Co., agents for the Regal and Rambler, have moved into a new one-story brick garage at 19 Hoadley place. In addition to plenty of room for the display of the Regal and Rambler lines, there also is a repair shop.

Detroit, Mich.—W. H. Marble, formerly connected with the purchasing department of the Chalmers Motor Co. and the Pullman Motor Car Co., has joined the sales force of the Abbott-Detroit Motor Co. and will represent it in the middle west.

San Diego, Cal.—Allen T. Hawley is building a new garage and machine shop at the southwest corner of Ninth street and University avenue, 50 by 100, and will conduct a car agency and a brokerage business in addition to storage and repairing motor cars.

Zanesville, O.—The Flash Mfg. Co., of Zanesville, recently incorporated, is preparing to establish a plant for the manufacture of a compound for the cleaning of cylinders and gasoline engines. E. B. Roemer, John Rowe, H. F. Achauer, Alva Rea and Stephen Mills, Jr., are the incorporators.

Columbus, O.—The Curtin-Williams Automobile Co., which has been operating a sales agency and garage at 122-132 Parsons avenue for a number of years, will after December 1 occupy a new salesroom on North Fourth street, between Long and Gay streets, which is now being erected. The structure will be 40 by 100 feet. The

company will handle the Peerless and Cadillac for 1911.

North Yakima, Wash.—The Yakima Auto and Supply Co. has taken the agency for the Winton in this territory.

Seattle, Wash.—Charles T. Grafield, of Seattle, has obtained the agency for the White gasoline trucks in this city.

Boston, Mass.—George A. Lowe and Frank Howard have formed the Lowe-Howard company to handle the Krit in Boston.

Rochester, N. Y.—The Gillis-Baird Motor Co. has taken the agency for the Stevens-Duryea and will handle it in connection with the Chalmers, Locomobile and Hudson.

Boston, Mass.—E. P. Blake has taken on the Abbott-Detroit in Boston as a pleasure line to go with the McIntyre truck, which he also handles. He has moved to Harcourt street.

Grand Junction, Colo.—Frank I. Lee, of the Mesa Rubber and Tire Works, will erect a new pressed brick and fireproof building 25 by 60 on Seventh street to cost about $5,000 and will carry tires.

New York—R. L. DeLisser, brother of Vice-President Horace DeLisser of the United States Motor Co., has joined the forces of the United Motors New York Co. He will have charge of the Columbia interests in New York.

Toledo, O.—The Toledo Carbureter Co. has been incorporated with a capital of $1,000, preliminary to manufacture and sell carbureters and other accessories, by E. E. Barthelemew, Edward Younger, W. K. Caldwell, W. R. Winn and F. G. Castle.

Syracuse, N. Y.—Theodore A. Young has been applying the finishing touches to his new cement block garage at 207 Noxon street and has just opened it as a new home for Peerless cars. Mr. Young also has the agency for the Westcott and Cole cars.

Newark, N. J.—H. L. Baumann will erect a four-story brick structure at 37-39 William street. The new building has been leased for a term of years by the A. Elliott Ranney Co., state agent for the Hudson and Peerless. The structure will be of brick, concrete and steel construction.

Wilmington, Del.—The building 210 West Tenth street is being remodeled by W. D. Haddock & Co. It is to be used as a garage and office for the local agency of the Studebaker. It adjoins the garage of the T. C. Bradford Co., and is opposite the garage of the Wilmington Automobile Co. in this city.

Chicago—The Siegmund-Bayliss Co., which has had the exclusive agency for the Rapid trucks for the past 3 years has taken over the Reliance trucks. A new $75,000 commercial car garage and salesroom for the combined lines is in the course of construction and will be ready for occupancy about December 1. Harry J. Fish, former general manager of the Indestructible Steel Wheel Co., has been appointed sales manager for the territory.

Detroit, Mich.—Charles Gilmour, Michigan distributer of Mitchell cars, has opened his new garage at 978 Woodward avenue.

Glenwood, Ia.—William Van Orsdel has purchased a half interest in a garage at Glenwood, the firm now being Dunagan & Van Orsdel.

Cheyenne, Wyo.—George Strawman, who has had the Maxwell agency at Cheyenne, has sold his business to L. M. Campbell, agent for the Overland.

St. Louis, Mo.—The Washington Automobile Co., which is to have salesrooms at 526-528 De Baliviere avenue, has been incorporated with a capital stock of $10,000, fully paid. The stockholders are: Anthony Collier, president; Adolph Simon, Charles J. Schneider and Arthur Sontag, twenty-five shares each. The company will do a general repair business and will secure a car agency.

Recent Incorporations

Nashville, Tenn.—J. C. Green Automobile Co., capital stock $15,000; incorporators, J. C. Green, Edward I. Craig, Jr., Joe Guild and John A. Chambliss.

Buffalo, N. Y.—Richardson Auto-Tire Protector Co., capital stock, $100,000; to manufacture tire protectors for motor cars; incorporators, Jason Richardson, Ora Richardson, and Valentine Hoefner.

Newark, N. J.—American Auto Co. of New Jersey, capital stock, $100,000; to deal in motor cars; incorporators, J. D. Dewitt, A. B. Aschenbach, and H. W. Morehouse, Jr.

New York—Hengel-Addis Mfg. Co., capital stock, $1,200; to manufacture incidental equipment for motor cars, etc.; incorporators, Frederick Hengel, Jacob Addis and Julia Addis.

Detroit, Mich.—Horton Autoette Mfg. Co., capital stock, $100,000.

Guthrie, Okla.—Northwest Motor Co. of Oklahoma, capital stock, $100,000; directors, L. R. Weiss, Charles E. Sockler, C. P. Wickmiller, Earl Worl, and M. M. Flickenger.

Westerly, R. I.—Dual Tire Wheel Co., capital stock, $100,000.

Indianapolis, Ind.—Phillips Demountable Rim Co., capital stock, $30,000; directors, J. N. Crabb, W. A. Zumpfe, J. E. Messick, G. S. Bertsch, and H. K. Ruckelshaus.

Indianapolis, Ind.—Opp-Holder Automobile Co., capital stock, $4,000; general dealers; incorporators, A. T. Summer, George Holder and J. R. Opp.

Chicago, Ill.—Automatic Motor and Engineering Co., capital stock, $100,000; to manufacture engines and machinery; incorporators, A. C. Allen, A. E. Roof, G. T. Clithere and A. E. Church.

Mason City, Ia.—Colby Car Mfg. Co., capital stock, $1,000,000; to manufacture newly patented motor car; incorporators, W. S. Colby, I. W. Keerl, A. H. Gale and George Howland.

Wilmington, Del.—Webb Motor Fire Apparatus Co., capital stock, $1,500; incorporators, Charles H. Danes, G. B. Arnold and E. B. Waples.

Portland, Me.—Roader Car Co., capital stock, $1,000,000; to manufacture and deal in motor cars, vehicles, motor cycles, power boats, etc.; incorporators, P. J. Larrabee and C. L. Beedy.

Portland, Me.—Colby Motor Co., capital stock, $1,000,000; to manufacture and sell motor cars and parts; incorporators, R. S. Buzzell and M. M. Farrar.

Portland, Me.—National Boat and Engine Co., capital stock, $10,000,000.

Buffalo, N. Y.—Mitchell Automobile Co., capital stock, $23,000; directors, Alphonse Karl, John J. Gibson and Jacob F. Cramer.

Hopkinsville, Ky.—Ideal Motor Car Co., capital stock, $10,000; incorporators, Sam. Frankel, Chas. S. Jackson and Will Kimmons.

Newark, N. J.—Record Oil and Supply Co., capital stock, $10,000; to deal in oils and motor car supplies; incorporators, Richard A. Finn, Mahlon W. Parsons and Swart F. Peterkin.

Trenton, N. J.—Wortendyke Garage Co., capital stock, $3,000; to deal in motor car supplies; incorporators, Stella D. Wortendyke, John S. Wortendyke and Victor A. Hart.

Boston, Mass.—Kline Kar Automobile Co., capital stock, $1,000; incorporators, George E. Tebbetts, N. Lee Rush and John G. Ray.

Baltimore, Md.—Bernheimer Brothers will build a two-story brick garage, 40 by 50, at 415-417 North Paca street, to cost about $1,200.

Boston, Mass.—S. E. Baker, formerly with the Fiat and later with the Parry and Rainier, has gone with the Boston Lozier branch.

Lansing, Mich.—The Motor Manufacturing Co., of Muskegon, has been incorporated and has increased its capital stock from $100,000 to $150,000.

Portland, Ore.—W. S. Dulmage, sales manager of the Studebaker motor car department in Portland, has resigned to take over the agency for the Elmore car for Oregon.

Pittsburg, Pa.—The Liberty Auto Tire and Supply Co., whose offices are at 302 Highland building, has received the agency for western Pennsylvania for the Horseshoe tires.

Rochester, N. Y.—The Strong-Crittenden Co. has opened new salesrooms in Clinton avenue south near Monroe avenue, and will handle the Lozier, Pope-Hartford and Haynes.

Clinton, N. J.—The Empire Tire Co. has added a second story to its office building, which will be given over to the accounting department. It also has put in a tire shipping and stock room department, which is located in a three-story building 30 by 80 feet. It has added to its main mill room building a third-story addition 40 by 70 feet.

Philadelphia, Pa.—The Consolidated Rubber Tire Co., maker of the Kelly-Springfield tires, has moved into its new quarters at 208 North Broad street. The office on the first floor has a suite of four rooms, the second floor includes a stock room 90 feet long, with a capacity of 2,500 casings, and the third floor is used for storage purposes.

Binghamton, N. Y.—The Binghamton Taxicab Co. has leased the large building on the east side of State street. The open driveway part will be roofed over with a large skylight, giving a garage with 4,000 square feet of floor space, which will be used for the storage of the taxicabs and delivery cars of the company and as a general garage and supply house.

St. Louis, Mo.—It is announced that the Webb Motor Fire Apparatus Co., of St. Louis, has been reorganized under the laws of Delaware, the capital stock being $1,500,000. The officers are: A. C. Webb, president and general manager; D. B. Blossom, vice-president, and A. R. Force, secretary. One motor fire engine a day will be constructed by the concern.

THE DOUBLE-JET HOLLEY 1911 CARBURETER

THE Holley Brothers Co., Detroit, Mich., has brought out a new type of carbureter for next year, which has been designated as the double-jet model, and which is illustrated in Fig. 1, a vertical section showing its details of construction. This carbureter gets its name from the fact that the main jet, or nozzle N, is obliquely located in the venturi passage P, and the auxiliary nozzle N1 is located so that the auxiliary air valve X covers the nozzle when the valve is seated, but immediately the valve opens this nozzle is uncovered and gasoline drawn out by the inrush of the auxiliary air.

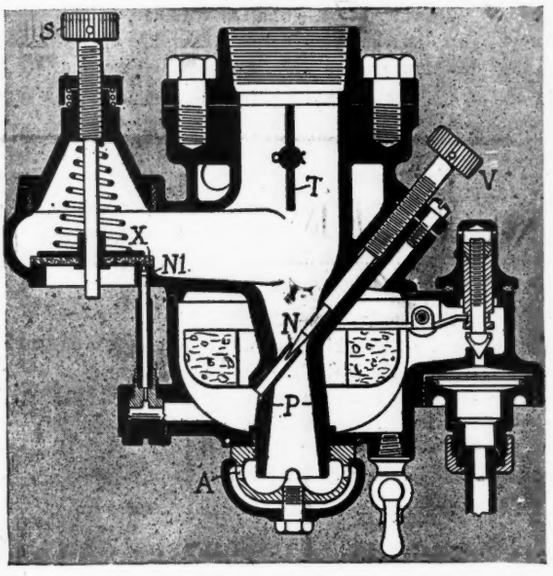


FIG. 1—SECTION OF HOLLEY DOUBLE-JET CARBURETER

Heretofore the Holley company has marketed a puddle-type of carbureter, that is, one in which a spraying nozzle, in the accepted sense of the term, was not used, but the air passage was, roughly speaking, a U with the air entering at one end and the mixture exiting at the other end. In the bottom or curve of the U was a nozzle out of which the gasoline overflowed, forming a pool or puddle, from which the carbureter gets its name. As the air passed over the surface of this pool it picked up the necessary gasoline, giving a suitable mixture. The Holley company gives as its reason for departing from the puddle to the new double-jet concentric float type, the fact that in the puddle design it was difficult to secure sufficient air at high speeds, owing to the restricted passage in the bend of the U air passage. With the double-jet type, according to tests, this difficulty has been overcome. The main air enters through a series of openings A and passes upwards through the venturi passage, drawing its supply of gasoline at the nozzle N.

In brief, the theory of operation is as follows: For low speeds the main air opening A, and the main nozzle N, suffices. For intermediate and high speeds additional air is required, which is taken in through the valve X. This additional air calls for additional gasoline, which is taken in by the nozzle N1. There is thus in this double-jet Holley a fixed air and gasoline ratio. The role of the auxiliary air valve is to maintain a uniform vacuum at the nozzle N, irrespective of motor speed, so that there will be a constant flow of gasoline from this nozzle. Readers will understand that the faster the air flows through the venturi passage the greater will be the force it exerts on the gasoline in the nozzle N, and the more gasoline will be drawn out. If there were no auxiliary air valve the passage A would not afford sufficient air, and the proportion of gasoline would increase, the result being too rich a mixture. The opening of the auxiliary air valve remedies this trouble, but the tendency would be with the auxiliary air valve alone to give too much air, and it is to counteract the possibility of too lean a mixture that the second nozzle N1 has been introduced. Where a double nozzle of this nature is not used in carburetion, some manufacturers have aimed at the same result by mechanically controlling the needle valve V, so that with every variation in the opening of the throttle T there is a proportionate lift of the needle valve V out of the nozzle, thereby allowing more gasoline to flow.

The Holley company has made tests with this new double-jet carbureter on a four-cylinder motor with 3¾-inch bore and 4½-inch stroke. The results of these tests are shown in the chart, Fig. 2. On the left side of this chart is a series of figures showing the actual horsepower generated by the motor during the test. Along the bottom of the chart the figures show the crankshaft revolutions per minute, and up the right side is shown the consumption of gasoline in gallons per horsepower-hour. On the chart are two lines, one AB showing the gasoline consumption, the other CD showing the horsepower. It will be noted that with the motor running at 500 revolutions per minute, as shown at point C, the horsepower is 7.5; and for this horsepower the gasoline consumption shown at point A is .14 gallons per horsepower-hour. Roughly speaking, this means that this motor would consume a gallon of gasoline per hour when generating 7.5 horsepower.

A further analysis of this diagram shows that the line from the point A drops, so that at A1, with the crankshaft at 600 revolutions per minute and the motor generating 10 horsepower, the fuel consumption drops to .12 gallons per horsepower-hour. From the point A1 practically to the point B, the fuel consumption does not change, although the horsepower gradually increases, as shown by the line CD, which continues to rise at 45 degrees. This means that there is economy of fuel in this carbureter as the horsepower increases. It further shows that as the crankshaft speed increases up to 1,500 revolutions per minute there is practically a steady increase in horsepower, excepting from 1,300 to 1,400 revolutions per minute, where the horsepower remains stationary, as indicated by the flat part of the curve AB. It will be noted that the economy is poorest at low speeds. In fact at 200 revolutions per minute, not shown on the chart, the consumption was .31 gallons per horsepower-hour. The following tabulation shows the gasoline efficiency of this carbureter at speeds from 500 to 1,500:

Rev.	H. P.	Gas per Hr. per H. P.	Rev.	H. P.	Gas per Hr. per H. P.
500	7.05	.14	925	13.87	.12
550	8.25	.13	1000	15.00	.12
600	9.00	.12	1100	16.50	.12
650	9.75	.12	1250	18.75	.12
700	10.50	.13	1300	19.50	.12
750	11.25	.12	1400	19.60	.12
800	12.00	.12	1500	21.00	.12
850	12.75	.12			

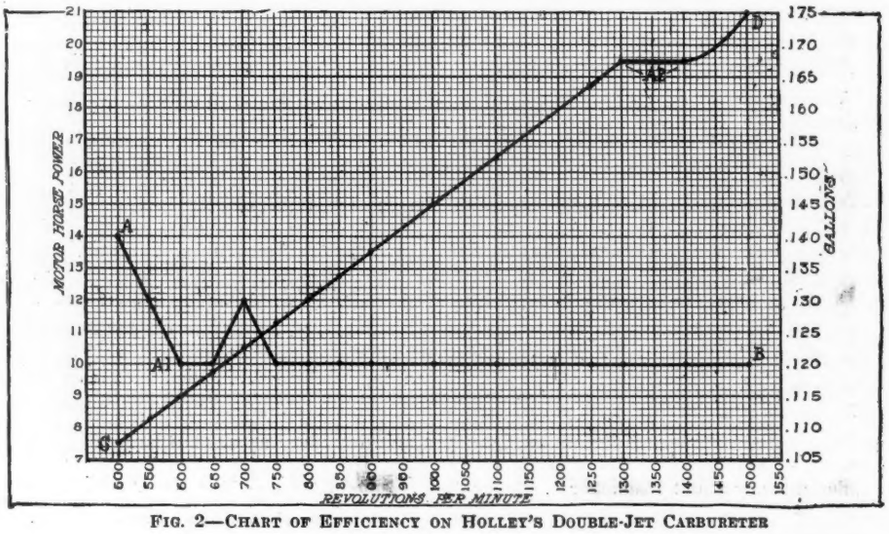


FIG. 2—CHART OF EFFICIENCY ON HOLLEY'S DOUBLE-JET CARBURETER